

CINEMA DIGEST

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Cinemabiography

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April 30th, 1936



CINEMA DIGEST

CHICAGO, ILLINOIS

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LOCAL 666

By W. H. S.

Complete jurisdiction over Sound Technicians was decided in favor of the I. A. T. S. E. at a recent conference in Washington between President George E. Browne and Dan Tracy President of the I. B. E. W. settling the long standing dispute over jurisdiction between the two crafts which precipitated the Studio Technicians strike in 1932. The settlement gives I. A. Local 659 jurisdiction over almost 1,000 Soundmen in the studios effective April 1st.

New Basic Studio Agreement Signed

Conferences lasting several weeks were concluded last week with the signing of a New Basic Studio Agreement. A 10 per cent increase in wages was given the crafts under the jurisdiction of the International Alliance of Theatrical Stage Employees and Motion Picture Operators and a 36-hour week was agreed upon.

Mr. George E. Browne, President of the I. A. T. S. E., and Steve Newman West, Coast Representative, handled the matter for the International Alliance, Mr. Pat Casey, Chairman of the Producers Committee, served as chairman of the conference, others on the committee representing major producers and studios were: Sidney R. Kent, Twenty-Century Fox; Nicholas M. Schenk, M. G. M.; Leo Spitz and M. H. Aylesworth, R. K. O.; E. W. Hammons, Educational; Harry Buckley, United Artists; Al Warner, Warner Brothers; R. H. Cochrane, Universal; Austin Geough, Paramount; Nate Spingold, Columbia.

Negotiations are now under way for a new agreement for Newsreel Cameramen at which an increase in wages and limited number of hours of work will be sought.

The Biennial Convention of the I. A. T. S. E. will open in Kansas City, Missouri, on June 8th. The reelection of President Browne should be a sure thing on account of the splendid work for the Alliance he has done during his term.

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THE BUSMAN

By Roy Hess

"Benny" Franklin was a sage,
 A better man than most,
 Statesman, philosopher,
 The founder of "The Post."
 His many accomplishments
 We won't stop to discuss,
 We only find his equal in
 The man who runs a bus.
 The Busman is a Franklin
 In the many parts he plays,
 Astounding the observer
 In sundry divers ways.
 His various activities,
 Performed without a fuss
 Are just the daily routine
 To the man who runs a bus.
 The Busman is a chauffeur,
 A driver of great skill,
 A cashier who while driving,
 Contrives to change a bill.
 Announcer, Doorman, Auditor,
 A Transfer Agent, plus
 The duties of a Janitor,
 The man who runs a bus.
 I've watched him daily for some time,
 And marvel at his skill,
 The acme of performance,
 The essence of good will,
 He smiles on all serenely,
 At things most men would "cuss."
 My tribute, and my hat's off to
 The man who runs a bus.

Chi-Film Moves

CHICAGO Film Laboratory, Inc., is moving to new quarters at 18 W. Walton Place, where the former Opera Club Building is being remodelled into a modern sound studio with complete facilities for the production of sound motion pictures and slide films.

The most outstanding feature of the new quarters, which will be ready for occupancy on or about May 20th, is the extremely large ground-floor sound stage, now being sound-proofed by Johns-Manville. Replete with catwalks, special lighting outlets, and set-building advantages, this new stage will permit an operating scope of Hollywood proportions.

Up-to-date offices and reception room, a modern sound-proof projection room, re-recording rooms, dark rooms, cast dressing and make-up rooms, and complete facilities for slide film production and development are included in the new quarters. (Chicago Film's motion picture development laboratories will continue at 1322 Belmont Avenue, where new 16 mm. sound printers and developing machines have just been installed).

This move to the new location will establish Chicago Film Laboratories Inc., as the most completely equipped producing company in the Chicago area. It comes as a culmination of nine years of progressive development by ChiFilm in the production and servicing of industrial and educational films in the Middle West.

S. M. P. E. CONVENTION

R. FAWN MITCHELL



THE RECENT CONVENTION of the Society of Motion Picture Engineers held at the Edgewater Beach Hotel was one of the most successful ever conducted by the Society. Outlined to a rigid schedule, it went off like clock-work and still allowed ample time for interesting and provocative discussions.

A good start was made Monday morning in the showing of reprints of some of the very early historical films by the Museum of Modern Art Film Library of New York. The old picture, "A Trip to the Moon," was one of the first trick pictures known and attracted most favorable attention. After the usual cordial get-together luncheon, the convention settled down to serious work.

Monday afternoon was allocated to papers on sound equipment and particularly to demonstrations of various sound apparatus. A very lucid paper and demonstration on the response of different types of photo-electric cells to different colored lights, etc., made an excellent impression. Probably the most fascinating demonstration of the entire session was the showing of a 16 mm. x-ray picture of men and women talking. This picture was run on a 16 mm. Filmosound machine and showed the tongue and other organs of speech in motion while the subjects were talking. This paper attracted very interesting comments from several physicians present and undoubtedly will be the forerunner of many such pictures made to study the mechanism of speech. Later on in the afternoon another extremely interesting demonstration was made whereby a 16 mm. picture was projected on to an electron image tube. The picture was projected through a filter which cut out all visible light, so that only the infra red image went through to the tube. The tube picked it up in the manner of a television image and made a most effective demonstration. The afternoon concluded with a paper and demonstration supporting the contention that the use of ultra violet light improved sound quality to a marked degree. In the evening, both Monday and Tuesday, the showing of current pictures was held and on Wednesday night there was the regular banquet, accompanied by entertainment and a very interesting talk and demonstration by Dr. Cronies of the University of Chicago. Tuesday morning was also given over to acoustics and sound apparatus and another interesting demonstration was made showing the effective use of two pick-up microphones at different distances, both in and out of phase. This demonstration

showed most effectively how important this microphone placement actually is.

On Tuesday afternoon there were various papers covering lighting and projection and on Wednesday morning some interesting data was furnished on the preservation of film. Capt. John G. Bradley of the National Archives in Washington has been co-operating very carefully with the Bureau of Standards. Six months ago at the last convention it was stated that film could be stored for about twenty-five years and by successive duplications, its usefulness could probably be extended to 100 or perhaps 500 years. As a result of further careful research, and to the surprise of all the convention members, it was stated that acetate base was found to be much more durable than nitrate film and that with methods of storage now being utilized by the Archives, copies on acetate base should last 500 years and by successive duplications should last practically indefinitely. The importance of saving all available motion pictures of historical importance is now being recognized throughout the world and the advanced work conducted by the SMPE committee in this respect should be of international importance.

Later on Wednesday afternoon, a paper describing the use of the Dufaycolor film developed as a negative was given and a demonstration made showing how this color film could be developed and printed in standard black and white equipment.

Thursday morning was given over largely to various applications of slide film which also is becoming quite a field in itself. The morning concluded with a report of the non-theatrical committee and a snappy paper on things some producers required of industrial 16 mm. sound projectors. Later on in the evening a demonstration was given showing a current safety picture made and shown by an automobile manufacturer, which demonstrated vividly the tremendous advances which have occurred in the 16 mm. non-theatrical field. At the end of the session also a special sound test reel was demonstrated on the new 1,000 watt Filmosound projector to show that this equipment can give quality equivalent to that normally associated only with high grade 35 mm. equipment in small theatres. The session concluded by the showing of some special Kodachrome demonstration film on this 1,000 watt projector to demonstrate the tremendous advances which have been made possible by the combination of the new 16 mm. color film and powerful precision 16 mm. projectors.

The Application of the Pola-Screen

By HARRY BIRCH

Local 666, I. A. T. S. E.

POLARIZING Light—

In our daily work many problems present themselves. Some are very disturbing and others are very trivial. One of the greatest bugaboos in the photographic profession has been that of reflection from surfaces such as glass windows, automobile bodies and other similar areas.

The announcement of the Pola-Screen in the November issue of this publication created much interest among both motion picture cameramen and still photographers.

What is this Pola-Screen? What will it do? "Pola" is merely an abbreviation of "Polarize" or "Polarization." The word "Polarization," according to Webster, means, "Particular modification (as to rays of light by the action of certain media or surfaces, so that they cannot be reflected or refracted again in certain directions)."

The article referred to above told many things about the unit. Its appearance, for instance, is that of a neutral grey cemented filter. It has many unusual properties, and the article explained the manner in which a light ray vibrates, the manner in which night effects might be obtained by the use of the screen plus a red filter. It was explained that the camera axis should be 30 degrees to the surface photographed, and that reflections could be removed from glass and water to show details beyond and below and that reflections could be wiped off windows and other similar surfaces.

This was a great help at the start. The Brulatour organization then furnished a test reel of film which was exhibited to the members of Local 666, I.A.T.S.E. This reel showed shots made with and without the unit.

Up to this time explanations of the use of the unit and pictures showing the results had been shown. But for the cameraman to do what an expert has done is not always possible. The man who conceives an idea, works out the unit of which he has dreamed, and then makes practical experiments, really does a job of great interest to himself. The practical cameraman, however, has not the incentive of the inventor. His is the job of getting good pictures, and the product of the inventor must be proven to be practical in the hands of the cameraman before it is put into service.

When an amateur or professional gets his hands on some new unit to be used in the photographic profession his first thought is, "Will it improve the quality of the pictures?" In most cases it will, if used properly. When the writer first laid hands on a Pola-Screen, to know this little fellow better, he decided to test it thoroughly. Tests made in the studio and on the street soon told him that the unit, when used properly, would do everything and more than had been claimed for it.

The photos appearing on this page were made with and without a Pola-Screen. Notice the lack of polarization in photo No. 1 where no screen is used. Then the screen was used. Photo No. 2 is from the same set-up, but here all reflections in the glass have disappeared.

In photographing commercial pictures, reflections have always been a source of worry, and many times the thought has been, "Let's break the damn window, and we won't have to worry about it."

After making various tests with the Pola-Screen, the opportunity presented itself, and a practical application

was made on a production by the Burton Holmes Film Company, for the Vitrolite Division of the Libby, Owen, Ford Company at Parkersburg, West Virginia. With the Pola-Screen available, it was thought that some unusually good results could be obtained, since the product to be photographed had considerable reflectability.

Some readers may not be familiar with this product. Vitrolite is a colored glass with a highly polished surface. It is similar to marble, but has much more lustre in the finish. The surface is like that of a mirror, beautiful to look at, rich in its many colors and built of a durable body which will last for many years. It is a beautiful product for the walls of high class bathrooms, rooms, lobbies or offices where permanency and beauty are paramount. It is also used for store fronts, table tops and many other things. With all its beauty and finish, it presents one of the most awkward problems ever encountered by the photographer.

In the shooting of our picture we first covered the highlights of manufacture, and then considered the matter of installation of the material. This, of course, was done on sets. In the building of these, our picture was to show the entire process of installation from the bare wall's and



Photos by courtesy Burton Holmes Films.

concrete floors of the building to the finished job. Included in the sets were a modern bathroom, an office building lavatory, a store front and a store side.

The difficulties of the situation were evident. Here was a set of two sides each approximately twenty feet long and entirely covered with Vitrolite with that bright

Turn to Page 15

Early Development of Electrical Recording

By ORLANDO R. MARSH

PART III

AFTER having seen our demonstration of talking moving pictures in Washington, D. C., the chief examiner of the Patent Office became very much interested in the device, and we found it much easier to get action on the pending claims. Our own patent attorney, Mr. John G. Elliot who was then a man of seventy years, had been an examiner in the Patent Office for fifteen years and knew quite a number of the Patent Office personnel. The chief examiner wrote two claims which expressed himself as willing to grant us provided we would let the patent go to issue. To indicate how strong our patent situation was at this time, I am here presenting one of these claims, No. 20, which was written by the Chief examiner himself:

CLAIM No. 20: The combination with a moving picture projecting record and a receiving surface for the pictures thereof, of a movable sound record located near said picture record, and adapted for movement in synchronism therewith, means for moving said records in synchronism, an electric current in substantial harmony with the sounds recorded on said sound record, a plurality of electric sound reproducers or receivers near said picture receiving surface, electric circuit connecting said transmitter and said receivers, and means for selectively energizing either or any number of said receivers.

In the meantime, we were improving the apparatus and daily learning new things about recording. We discovered that we could use a cone diaphragm with a coil attached in a strong magnetic field and that it would pick up sound vibrations. At this time, the cone speakers were not on the market, and the electro-dynamic speaker had not been invented. However, there was a phonograph known as the Pathe Actuelle, which used a conical diaphragm for reproducing the sound.

Knowing the local agent for this company, I was able to acquire one of these reproducing heads from which I removed the diaphragm and attached an electrical receiver which I used to actuate the paper cone of the speaker. We later adapted a paper cone to a Magnavox receiver using the moving coil to drive the diaphragm. I believe this was the first electro-dynamic speaker ever to be used. By reversing this process, we used the same speaker to pick up sound, and thus had the first dynamic microphone. Working along the same idea, I developed and built a cutter for recording our wax which was operated with a dynamic coil. Thus, we had dynamic microphones and a cutter prior to 1920.

In 1920, the Republican National Committee had their headquarters in the Congress Hotel. We succeeded in interesting some members of the Committee in our talking picture proposition, notably Will Hays. We, also, made a number of test records and pictures, one of which was Monteville Flowers of Los Angeles, California, who was one of the Republican Committee's "spell binders." We made a talking picture of Mr. Flowers delivering a Republican speech which we exhibited before the Committee in the Congress Hotel.

The apparatus used to make this production consisted of an electrically driven recording machine, gear connected to a moving picture camera so the sounds recorded were in absolute synchronism with the pictures. This apparatus was located in a sound proof booth built on the

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floor of the main studios at Essanay. The sounds were picked up in the set by dynamic microphones and recorded with a dynamic cutter. The apparatus for reproducing this production was a Standard Simplex Theater Projector to which was attached, by a telescoping shaft, a mechanically filtered turn-table set on a separate pedestal. This turn-table was equipped with an electrical pick-up and amplification, and the sounds emanated from the screen through loud speaking apparatus. In all the main principles involved, this apparatus was identical with the Vitaphone which came out just five years later.

SPRING CLEANING

By "DOC" GANTZ

WITH Spring already here — theoretically — and summer and vacations not far away, it is time to think of furbishing up equipment.

It is likely that little work will be needed on motion picture equipment, since it has probably been in use through cold weather. It is a good plan to check over things, and to make sure that you have the proper oil for warm weather. Nye's Clock Oil is perhaps the best to use when the days get warm.

If you have a Graflex, Speed Graphic, or other still camera with a focal plane shutter, it is wise to go over it pretty carefully, since if it has been idle all winter you are quite sure to find dust and gummy oil on the spindle bearings. Nothing is more annoying than a curtain shutter which is noisy due to squealing spindles—and besides, you are never sure it is giving the exposure you think it is. I use Finol on my Graflex, and find it very good.

Now is also the time to go over your filters and get them ready for work on the Spring and Summer skies.

Any filter which shows tendency to separation of its elements should be taken to a good optical shop to be re-cemented. In cleaning lenses or filters, never use alcohol as it will work into the Canada balsam used as cement and it is sure to cause trouble. Use only good lens cleaning compounds, of which several are on the market.

If you want to try making filters, you can make up good ones without a great deal of trouble.

Cleanliness is essential in all filter work, as well as patience. You can cement a gelatine between clear glass covers and mount it in a simple cell, and if you work carefully your filter is perfectly satisfactory for all but the worst critical work, such as color engraving.

I have found that glass plates make excellent filter glasses. Clean the emulsion off by scrubbing the plate under hot water. Do not use any gritty cleaning powder—the emulsion will come off easily in hot water.

Trim the glass to exact size, and clean thoroughly by boiling in a fairly strong solution of tri-sodium-phosphate. Handle with tweezers or print tongs.

Cut your gelatin somewhat larger than the glass, and be careful not to touch it with the fingers. Warm the

glass slightly, drop on a drop of warm Canada balsam, place the gelatine in position, and another drop of balsam. Then put the other glass in place, and put under slight pressure in a cool place for several weeks—six is about right.

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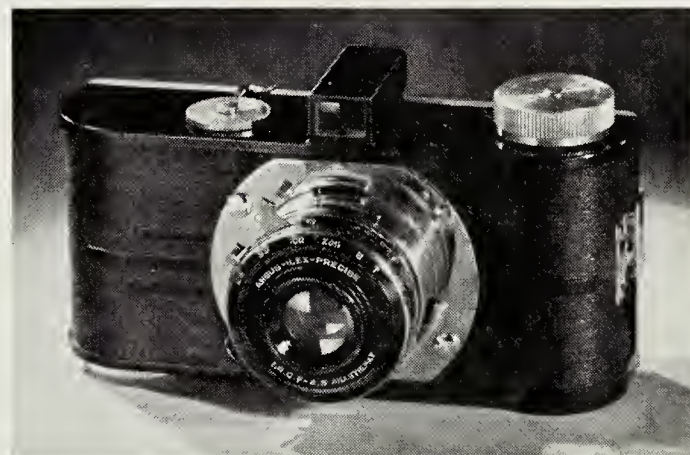
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The Characteristics of Eastman Motion Picture Negative Films

EMERY HUSE

Eastman Kodak Company, Hollywood, California

IT is generally accepted that photography is the foundation upon which the motion picture industry is built and it is not amiss to state that the negative emulsion is the foundation of photography. Primarily it is because of the importance of and the improvements in negative emulsions that photography has advanced to its present state. A decade ago camera and laboratory men were very little concerned with the color sensitivity properties of negative motion picture film, and panchromatic emulsions, while known, were rarely used.

In those earlier days orthochromatic negative film was generally used as the medium on which exposures were made. In conjunction with this film, use was made of mercury vapor and arc lamps, since these light sources were considered the epitome in the field of studio illuminants. The orthochromatic negative emulsion, because of its blue sensitivity, was ideally suited for photography by the radiations emitted from the mercury vapor lamps, since the radiations from this lamp were very pronounced in the same spectral region. The carbon arc also emitted strong blue-green radiation and it was not uncommon practice to make use of both types of lamps in the illumination of a motion picture set. Since the orthochromatic emulsion was deficient in red sensitivity it mattered not at all that these light sources were deficient in this same spectral region. For exterior photography the orthochromatic film proved very satisfactory since daylight and sunlight likewise emitted considerable blue-green radiation.

It would be well at this point to digress and define more adequately the terms orthochromatic and panchromatic. A gelatino-silver bromide emulsion is normally only blue sensitive and unless the use of sensitizing dyes are resorted to, colors other than blue are inadequately reproduced. With the aid of dye sensitizing, emulsions may be rendered sensitive to other portions of the visible spectrum in addition to the normal blue sensitivity of the simple silver bromide emulsion. This silver-bromide emulsion having only blue sensitivity is referred to in photographic terminology as an "ordinary" emulsion. Using this type of emulsion as a basis for dye sensitivity research it was found that certain dyes rendered an emulsion sensitive to the blue-green, green, and yellow portions of the visible spectrum. Emulsions so treated by dyes as to produce this type of sensitivity are known as "orthochromatic" emulsions. The word orthochromatic implies that objects of different color brightnesses can be rendered in a truer gray scale than with ordinary emulsions. Further research in the field of dye sensitizing led to the discovery of certain dyes which have the ability to render an emulsion sensitive to the red region of the visible spectrum, this red sensitivity being acquired in addition to the blue, green, and yellow sensitivity of the orthochromatic type. Emulsions containing this additional red sensitivity are referred to as "panchromatic" emulsions, the word panchromatic implying that the emulsion has the ability to record colored objects in terms of grays in their proper brightness relationship. The Eastman Kodak Company first undertook the manufacture of panchromatic emulsions in 1912. These earlier emulsions for the most part were coated on glass plates.

As late as 1927 the majority of motion picture productions were made using orthochromatic negative with mercury vapor and arc lamps but from that date forward there was a steady trend toward the exclusive use of panchromatic films and light sources of the incandescent tungsten lamp type as well as high efficiency carbon arcs. The old type orthochromatic negative emulsion when used with incandescent tungsten lamps, exhibited far less sensitivity than when used with the mercury vapor and arc lamps or daylight. It was natural, therefore, that a means be found to make use of this more efficient type of illumination. Since the field of emulsion sensitizing had progressed to the point where very acceptable panchromatic film emulsions could be manufactured, it was likewise quite natural that use was made of such emulsions. As was indicated above, the manufacture of panchromatic emulsions in this country began in 1912 but very little panchromatic film had found its way into the motion picture industry prior to 1927. It is difficult to state whether panchromatic film or tungsten lighting equipment first attracted the attention of the photographic world, since for years experimental research had been carried on in both fields, but it is interesting to note that both of them were brought forcibly to the attention of the motion picture industry during the latter part of 1927.



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and the early part of 1928. The real reason for this was due to the fact that the years of research in the two fields had reached a practical culmination at approximately the same time and since each was partially dependent upon the other, it is not difficult to understand their almost simultaneous introduction to motion picture photography.

It is impossible to discuss motion picture negative emulsions as they are now known without digressing for a moment for a discussion of another development in the field of photography which took place almost immediately after the introduction of panchromatic film and incandescent tungsten illuminants. Reference is made to the fine grain negative developer which was introduced to the trade by the Eastman Kodak Company in 1929. The reason that this discussion cannot progress without considering the developer situation is because of the fact that this developer single handedly played a very large part in the advancement of motion picture photographic quality.

In photography that chemical solution which is used to reduce the exposed silver bromide grains to metallic silver and thus make visible the effect of exposure is referred to as the developer. A developer consists primarily of a reducing agent, an accelerator in the form of an alkali, and a preservative, usually sodium sulfite. This does not imply that a developing solution contains only three chemicals since there are quite a few other chemicals which may be properly compounded to produce a developer which will give the desired degree of chemical reduction of the exposed film. In the days of orthochromatic negative a developer of a type which we would now consider extremely violent in its action was used. This developer and modifications of it consisted of the use of organic reducing agents, sodium carbonate as the alkali for accelerating the action of the reducing agents and sodium sulfite in just such quantities to preserve the developer against undue aerial oxidation. It was necessary that an active developer be used because of the limitations in the speed of the orthochromatic film and in the efficiency of the light sources. When, however, panchromatic film and incandescent illuminants were both available there were certain photographic quality deficiencies prevalent which it was felt could be eliminated by a different method of compounding the developer solution. Considerable experimental work had been carried on in the Research Laboratories of the Eastman Kodak Company and in 1929 a formula for the development of negative films, known as the borax developer, was offered to the trade. This developer differed materially from other types of negative developers in that its action was much less violent. Since it was known that sodium sulfite in excess acted as a partial solvent of silver halides, this fact was made use of. The borax developer consisted essentially of the reducing agents, the alkali and sodium sulfite in excess. Since a strong alkali causes a more rapid development and a greater tendency toward grain clumping during development, it was conceived that a weaker alkali would be an admirable partner for the silver halide solvent, sodium sulfite. This weaker alkali in the developer necessitated a longer time of development than had been customary with the old type of developers and this increased time factor gave the sulfite a better chance to get in its work. The combination of these two elements, namely, sodium tetraborate, (borax) and an excess of sodium sulfite, produced the real working factors of this new developer.

Since the panchromatic emulsions exhibited a fair speed characteristic, the use of the borax developer did not cause any material disadvantages from the speed standpoint but the advantage derived was in the form of finer grain characteristic, which more than offset what at first seemed to be slight disadvantages. Because of the

solvent action of sodium sulfite the borax developer produced somewhat less emulsion speed than the previous types. The very fact that this new developer came into use almost coincidentally with the introduction of panchromatic films and incandescent light sources made the problem of finally establishing a simple routine of practice somewhat more difficult. Not only were the cameraman involved from the standpoint of new lights and new methods of lighting, but the laboratory men also were confronted with the necessity of understanding fully the functions of the borax negative developer. The fact that panchromatic film, being sensitive to the entire visible spectrum, allowed for very little darkroom illumination further complicated this entire problem. In the light of our present day knowledge these factors are not considered difficult to handle but at the time of their introduction there were a considerable number of obstacles which seemed difficult to overcome.

During the first year after the introduction of these three new features, considerable progress was made. In a large measure the success of the application of these various technological aspects would not have been so satisfactory had it not been for the personal artistry of the cinematographer and the splendid co-operation of the laboratory technicians. To the men of both of these important branches in the motion picture field great tribute should be paid because they both gave considerable impetus to the production of high grade photographic quality to which we are accustomed today.

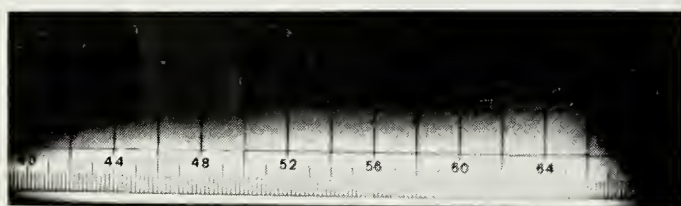
It was found that as time progressed the first type of panchromatic emulsion used for motion picture photography was not all that could be desired. While there was progress shown it was felt by the emulsion manufacturers that definite improvements could be made in the negative emulsion itself.

The first outstanding improvement in negative emulsions was made during the latter part of 1928, at which time the Eastman Kodak Company introduced Eastman Type II panchromatic motion picture negative film. This film when compared directly with its predecessor showed a marked improvement and was the first real step in the direction of finer photographic quality. As time passed and the use of the new illuminants and the new developer were better understood, it was found that this Type II negative also lacked certain qualities which it was felt could be overcome in a new type of film. In February of 1931 Eastman Super-Sensitive motion picture negative film was presented to the trade. This negative introduced a new era in the negative emulsion field. Not only was the quality of this film superior to that of Type II but its speed was materially greater. Under daylight conditions it exhibited twice the speed of Type II, while with normal set lighting it was nearly three times as fast. There was less contrast shown by this emulsion and a much finer graininess characteristic was in evidence. This film played a very important part in the fine photographic quality exhibited in motion picture production during the years 1931 to 1935. During these latter years steady advancement was made in the field of illuminants, during which time more efficient light sources of the tungsten type were manufactured. The functions of the borax developer were more thoroughly understood. Likewise by 1931 the use of developing machines for the development of negative film, as well as positive film, had almost completely supplanted rack and tank development in the major motion picture laboratories. Machine development in itself played a large part toward contributing to better photographic results.

Following the general policy of the Eastman Kodak Company to strive continually in the improvement of its

products, there was manufactured during the year 1935 a new type of panchromatic negative film which was given the name Eastman Super X. This emulsion exhibited certain superior qualities to those of the Super-Sensitive film in that a speed increase of approximately 75% was shown, together with a slightly softer characteristic and a definitely finer grain structure. This emulsion met with immediate approval after complete tests by the camera and laboratory men and at the time of this writing approximately 95% of the motion picture productions made on film of Eastman manufacture are photographed with this new Super X Panchromatic Negative.

The emulsions which have just been described are in a sense in a direct line of succession since each new one replaced the older one completely for the purpose of normal motion picture work. However, there were other fields of endeavor open to the emulsion manufacturer. During the years 1931 to 1934, particularly, considerable experimental work, as well as production work, was being done in a new field known as the Projection Background Process. This process more or less completely superseded other special effect processes which had been in use for several years. The fundamentals of the projection background process are extremely well known but some details of it have escaped general attention. Since the process of rephotographing a projected image on a translucent screen is essentially one of duplication, it may be readily observed that any step toward the elimination of the emulsion graininess characteristics would be desirable. It was conceived that a negative emulsion with sufficient speed for exterior photography, since most background plates were exteriors, would lend to a greater improvement of the final results of this special process. An emulsion for



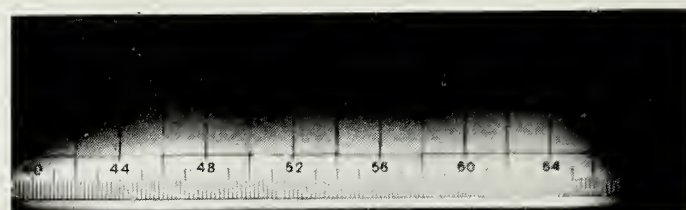
EASTMAN SUPER SENSITIVE NEGATIVE



FIG. ONE

this purpose should have similar color sensitivity characteristics to that of the negative but it should be dissimilar in that its grain structure should be materially finer. An emulsion for this purpose was manufactured and marketed under the name of Eastman Background Negative. This was introduced to the trade in the year 1933. Compared with Super X Negative this emulsion has about one-quarter the speed and exhibits definitely higher contrast under equal development conditions. The graininess factor, however, was excellent and without question this film soon established itself as the finest grained panchromatic negative emulsion in general use in the motion picture field.

It is today almost exclusively used for the production of projection background plates but other uses are being found for this film because of its very fine grained characteristic. In all of the foregoing paragraphs there has been presented a miniature chronological history of the



EASTMAN SUPER X NEGATIVE

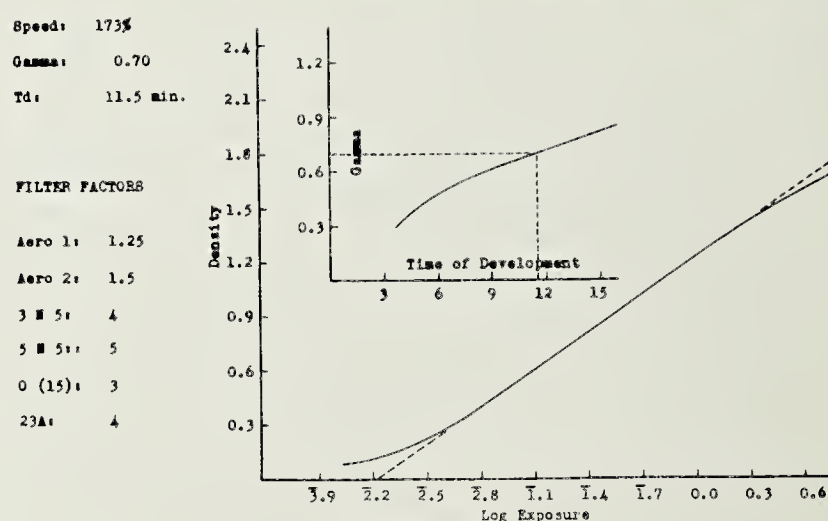
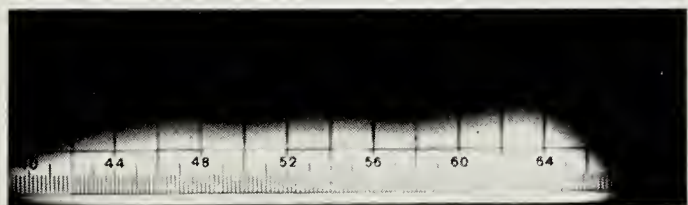


FIG. TWO

factors which have lent themselves to the achievements in photographic work which are possible today in the motion picture field. While it is the purpose of this paper to discuss particularly the current Eastman motion picture negative emulsions, such a discussion could not be given satisfactorily without devoting considerable time to a discussion of accompanying developments along other lines. Since it is felt that the historical side of this problem has been established, it is now possible to proceed with a discussion of the photographic emulsions themselves and the differences which exist between them.

The original panchromatic motion picture negative film as introduced in 1927 and the later Type II film, although of more recent origin, are more completely removed from the motion picture field of photography than the old type orthochromatic negative, since this latter film is still manufactured for certain laboratory purposes. It is interesting to note that for such purposes this film is rapidly becoming obsolete. The three Eastman motion picture negative films now available are Super-Sensitive, Super X, and Background. A detailed graphical and quantitative comparison of the characteristics of these three emulsions may be had at a glance by a comparison of Figures 1, 2, and 3. It will be observed that the color sensitivity difference between these emulsions is slight. The Super-Sensitive and Background negatives are essentially the same in this respect. The Super X Negative differs slightly in that its red sensitivity is somewhat reduced. This fact can be readily determined by a comparison of the filter factors of the 23A (red) filter. The filter factor of this filter for Super X Negative is 4, while for the other two films it is 3. Since the filter factor is a multiplying factor for exposure, the larger that factor the lower the sensitivity. The data on these three emulsions were obtained under identical conditions of testing. Exposures and subsequent development were simultaneously made. These emulsions may be classified in the order Super X, Super-Sensitive, and Background Negative in terms of descending speed, while from a contrast standpoint the emulsions would range in the same order for ascending

contrast characteristics. It will be seen, furthermore, that the characteristics of these three emulsions are tabulated for different values of gamma. This point needs some explanation. When Super-Sensitive Negative was in general use the average degree of development given it in the motion picture laboratories was represented by a gamma of approximately 0.65. Gamma is that characteristic of the film which indicates the degree of development. With the introduction of Super X Negative and its generally lower contrast characteristic it was found desirable to raise the average gamma to 0.70, it being determined by practical test that the emulsion quality of this negative was greatly enhanced at this slightly higher value. This change in average gamma from 0.65 to 0.70 represents an increase of only approximately 8%. Since the Background Negative is inherently one of high contrast and since one of the purposes of the Background Negative is to produce a somewhat more contrasty result, it was found that an average gamma of 0.75 was desirable for this material. It should be well understood that these values of gamma are approximations since they represent the average extent of development of these films in practice. Departures plus or minus from these average values are naturally at the discretion of the individual user. The times of development to produce these average gamma values for each type of negative progresses from the Background Negative, for which a short time of development is necessary, through the Super-Sensitive to the Super X, which requires the longest time. It was stated in a previous paragraph that Super X Negative is used in far greater quantities than the Super-Sensitive Negative. While this statement is true, it should be stated here that Super-Sensitive Negative film is still available for



EASTMAN BACKGROUND NEGATIVE

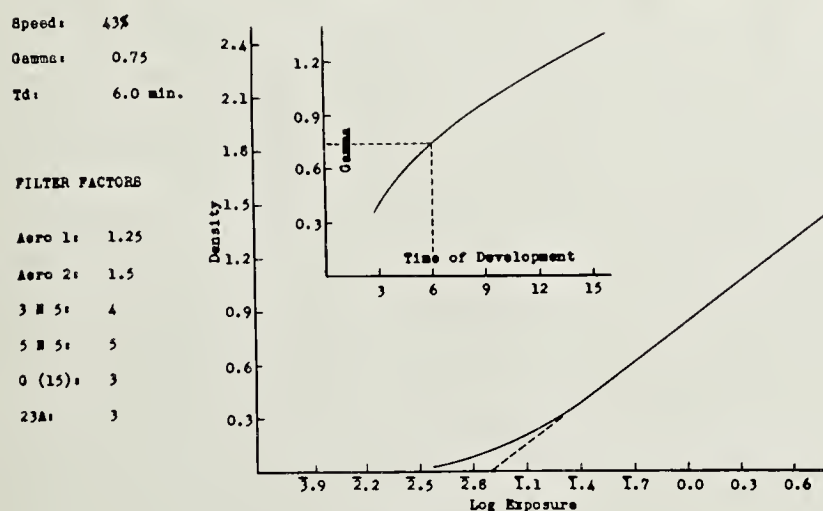


FIG. THREE

those users desiring this type of emulsion. However, indications point to the fact that before long Super-Sensitive Negative will be completely supplanted by Super X Negative.

Before leaving the subject it might be well to give some consideration to the various characteristics of emulsions and a bearing each has upon that intangible factor, photographic quality. There are many proponents to the idea that speed in a negative emulsion overshadows all other characteristics and that high speed is the most essential quality of a high grade negative emulsion. This is not true. Speed has a definite role to play because an emulsion

must have sufficient sensitivity to record adequately low light intensities; otherwise a burden is thrown upon the cameraman in the lighting of his sets. Speed, therefore, while important, is by no means the major factor to be considered in a negative emulsion from the standpoint of obtaining photographic quality. When one stops to consider that the negative emulsions of four years ago were approximately one-quarter the speed of the current emulsions, one wonders now that pictures could have been made with those older type films.

In the light of our present emulsion knowledge, Super X Negative film represents the highest speed of present commercial motion picture negative emulsions consistent with excellent photographic quality. It is quite possible to make faster emulsions but not without a sacrifice of some of the other favorable factors. Photographic quality is a condition brought about by the combination of several elements, of which emulsion speed is but one. Contrast and graininess characteristics are the other factors of major importance.

It is generally well known among photographers that high speed emulsions usually show low contrast and large grain size. In a slower emulsion, high contrast and fine grain align themselves together. This is a very important point and should be given full consideration. It is quite possible that as emulsion manufacturing knowledge advances these facts now considered laws might be overcome but in the manufacture of gelatino-silver bromide emulsions, speed, low contrast, and large grain size usually go hand in hand. The one exception to this is the current Super X Negative. This emulsion shows a finer grain characteristic than some of its slower predecessors but it is extremely doubtful that a faster emulsion than Super X Negative could be manufactured without showing a greater tendency toward graininess. While it is admitted that great speed would allow for more natural set lighting, it does not follow that the quality of the resulting pictures would be better unless the negative emulsion had contrast and graininess factors comparable to those in the current type negative emulsion.

It should again be emphasized that statements relative to the possibility of manufacturing various types of emulsions depends entirely upon current knowledge. It is quite probable that as the result of more extensive research, emulsions of a distinctly different type may be conceived. If this is done, a new era in photography will begin and it will be as radical a departure from what we now consider normal as that of orthochromatic negative and mercury vapor lamps to the present type of films and the high efficiency incandescent illuminants. It is safe to conclude, therefore, that the Super X type of emulsion represents the current practical limit of speed consistent with good quality. It is not meant that speed increases of the order of 10 to 20% are not possible. When it is possible to manufacture emulsions of greatly increased speed with the other factors lending to photographic quality kept within control, it stands to reason that such a film will be submitted to the motion picture trade for production purposes.

Andrew J. Kenney Joins Filmack

Irving Mack, president of Filmack Trailer Company, in Chicago, announces the appointment of Andrew J. Kenney to the position of Advertising Manager. Mr. Kenney was formerly associated with Warner Bros. Theatres in Chicago for five years, assisting with advertising and publicity.

As Advertising Manager for Filmack, Mr. Kenney will be in charge of all sales promotion, publicity and advertising.

THE ELEMENTS OF TELEVISION

By C. P. MEEK
Local 666, I. A. T. S. E.

Illustrations by Carlson Studios, Chicago

Section V—The Reflection of Light

IN previous paragraphs, certain similarities between television and radio broadcasting were discussed. The manner in which motion pictures were made possible was demonstrated, and methods used in this field were considered in their relation to television.

The picture to be transmitted has been segmented into small sections, and its composition has been shown to be of many miniature pieces, each having its own degree of light and shadow.

In the next step, advantage must be taken of these lights and shadows, and arrangements will be made to obtain from them various electrical impulses. But before entering into a discussion of the necessary equipment, consideration must be given to one of the fundamental

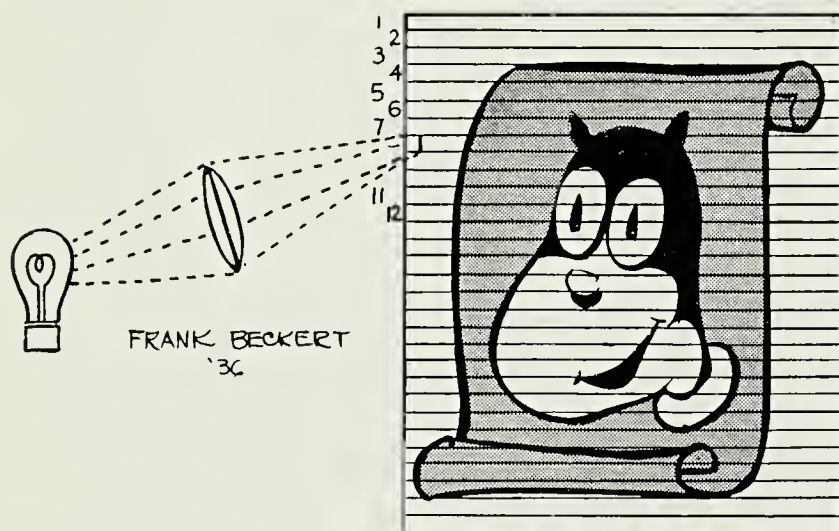


FIGURE 2A

principles involved. This entails the "Reflection of Light."

Why are some objects more easily observed than others? Complete darkness in a room is seldom found. Why is it that some objects are always visible, while others are invisible under the same conditions?

Have you ever walked along a country road in the dark? Ahead appears a dim white blur, and pictures and stories of ghosts and goblins are brought to mind. Finally the fearsome fantasies are dissolved as the white blur resolves itself into a large sign indicating the turn of the road.

What caused the white sign to stand out more plainly than the surrounding objects? Was it not because the road engineer made it of a light color? He knew that light colors would reflect any light flashed on them back into the observing eyes much better than would objects of darker hue.

Have you ever entered the kitchen on a dark night and groped for the light switch? The porcelain kitchen table and the enamel cooking utensils can be seen. There are some aluminum pots and pans in the corner, but they were not visible. The black frying pan which should be on the gas range isn't in evidence.

Shine the ray of a small flashlight to the ceiling. Such light is very weak, but with its aid, the porcelain table is seen much clearer and the grey aluminum pots are now noticeable. The frying pan, however, cannot yet be seen.

Change the flashlight to a 5-watt lamp. Now the entire

room is fairly light, and even the frying pan is visible. There is now sufficient illumination to bring all objects into view.

If the light is successively increased to that of a 15-watt lamp, a 25-watt lamp, and then to a 60-watt lamp, objects will appear clearer with each change. As the wattage of the lamp is augmented, the reflection of light into the eyes is increased.

Therefore, since increased wattage indicates greater brilliance at the source of light, there must be a definite relation between the intensity of light and the reflective ability of the object. It also follows that color governs reflectability as was shown in the above examples.

To summarize, *the amount of reflection is proportional to the shade or color of the object, and the amount of light falling on it.*

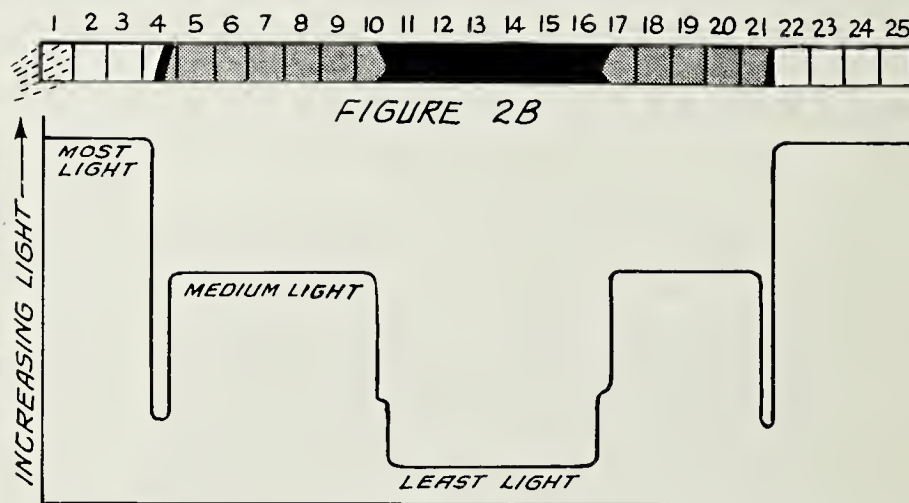


FIGURE 2C

Figure 2A is a picture which is to be televised. From this, strip No. 8 was taken out for illustration, and is shown in enlarged form as Figure 2B. Previous paragraphs showed how such a strip and picture could be divided into small sections. These directions have been followed to form a multiple of squares in the figure.

On the first square of the strip of Figure 2B a point of light, of the exact size of the quadrate, has been directed. Much of the original source of light will be reflected from this square, because it is of such pale color. When the ray rests on square No. 7, which is grey in hue, a smaller amount of light will be reflected. Square No. 14, which is black, will give little or no reflection.

If the beam of light is started at the left hand end of the strip of Figure 2A, and swung across to the right, there will be reflected into the observing eye varying quantities of light each dependent on the shade or color of the square illuminated at the moment. Most light will come from the white sections, and very little from those which are dark.

Figure 2C places this in the form of a curve which is very easily understood. Starting with an intense reflection, it changes with the various gradations of shading, and is then, a representation of the ability of the strip to reflect light.

Figure 2A is composed of many strips similar to that of Figure 2B, each having its own curve of light reflectability. In the transmission of pictures for television pur-

poses, the beam is started at the upper left hand corner of the picture and is swung across strip No. 1 from left to right. At the end of this strip the light is lowered until it is in position to sweep strip No. 2. This process is continued until the beam has swung from left to right across each strip throughout the entire picture. The various amounts of reflected light are directed into receiving devices which change the reflection into electrical effects.

Section VI—The Television Equivalent of the Microphone—The Photo-Electric Cell

Section IV showed that pictures could be divided into small portions, each with its own degree of shading. These sections reflected light, the amounts of reflection depending on the shading of each small section.

However, there must be something other than the human eye to receive these reflections—something to change them into electrical effects so that they may be used to operate an amplifier as did the microphone in radio broadcasting. This need has resulted in the invention of the PHOTO-ELECTRIC CELL.

A photo-electric cell is, in actuality, a type of vacuum tube very similar to those used in radio receivers. In fact, such a cell can be made from a radio tube.

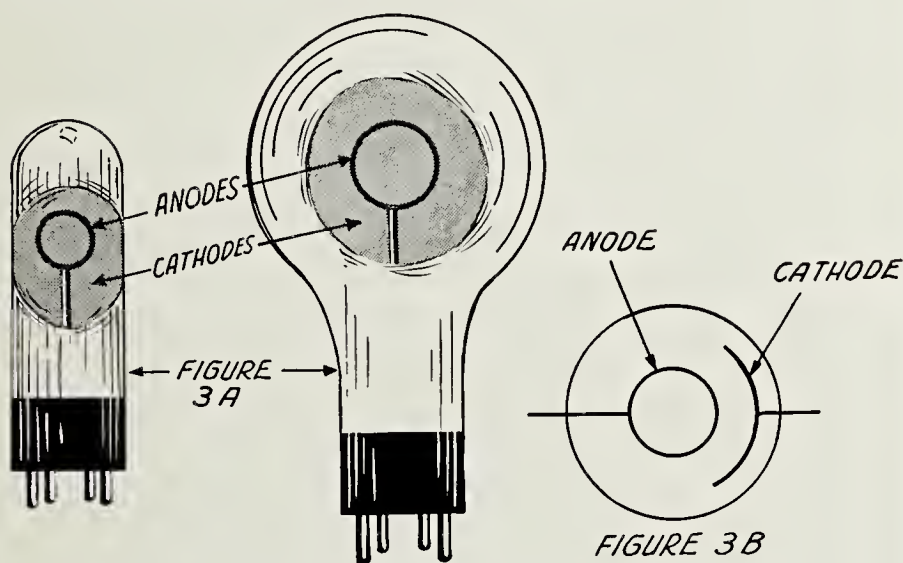


Figure 3A illustrates two typical models. The most common type is composed of an evacuated glass envelope coated on the inside with potassium hydride, a combination of a metal and a gas, namely, potassium and hydrogen. This takes the appearance of a silver-colored covering on the inside of the glass, and is known as the CATHODE. This corresponds to the filament of the radio tube. However, the cathode of the photo-electric cell is cold, while that of the radio tube is heated to the point of illumination.

A second element in the form of a ring is placed within the photo-electric cell. This is known as the ANODE, and it corresponds to the plate of the radio tube. Sometimes a little of the gas ARGON is admitted to make the cell more sensitive.

The diagram shows a circular window in the cathode of the cell. Through this opening, light is admitted to strike against the material of the cathode. The light performs for the cell what voltage on the grid does for the radio tube, namely, acts as a valve to allow more or less current to flow from one element to the other within the cell.

Figure 3B is a schematic of a photo-electric cell. Such schematics are used in the drawing of circuits using these cells.

Another installment of this interesting series of articles will appear in the June issue.

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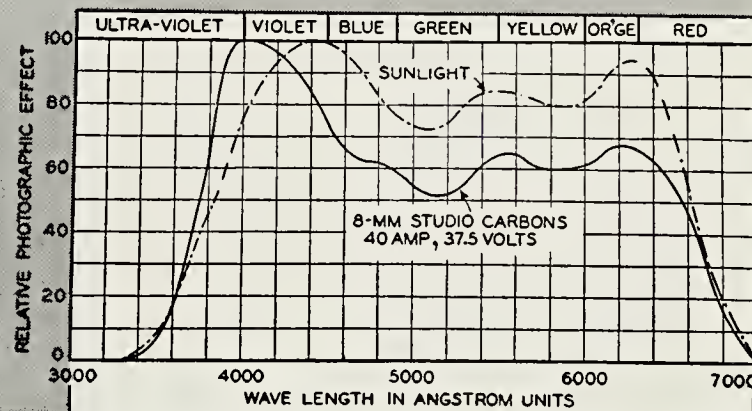
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Photography —

For those interested in hot weather processing of film when the tap water runs eighty degrees and there is no ice box handy, watch for Mr. E. W. Lowe's article which will appear in the June issue.

New Candid Camera

By E. W. LOWE

Recently one of the boys brought into this office a newly developed miniature camera called the Argus which looked the part and can be purchased for as low as the interest on a \$300.00 Government Baby Bond. The camera cartridge holds 36 double frame pictures on 35 mm. movie film, has fixed focus, two positions and F 4.5 Anastomat Triple Lens, Shutter works up to 1/200 of a second, is daylight loading, measures only 5"x2 1/4", and weighs less than one pound.

When I learned the price of the camera I was inclined to think it was just another cheap camera so I asked one of the boys to take it out and shoot a roll of film under various conditions and distances.

Frankly I was amazed at the results, clear snappy images with great depth of focus, extremely keen definition that undoubtedly will permit enlargements.

The picture reproduced here was made with this new miniature camera.

Conferences are now going on in New York City to negotiate a new Basic Studio Agreement and a New Newsreel Agreement. The results of which will be reported in detail in next month's issue of Cinema Digest.

Cinemabiography

WE present this month another "Old Timer" in the motion picture business, Bertel J. Klerup, President of Local 666, and Vice-President and Production Manager of the Society for Visual Education. Klerup was born in Sweden and



Bertel J. Klerup

came to this country as a child. He started in the laboratory of the Essanay Film Company in 1913 and for four years worked through all departments. In 1917 he was engaged by Selig Polyscope Company, Chicago, in the developing room and many of the old time great successes were developed by him by the old rack and tank method. While in the employ of Selig he helped design a developing machine which Col. Selig considered an outstanding achievement and was so delighted with it he took it with him to California. In addition to his other duties, Klerup first operated a camera at Selig's and was offered a contract with the Company if he would go to Hollywood at that time. Klerup declined, however, stating he felt that Chicago was destined to become a great picture center in time. He was the last employee to leave Selig's Chicago Studio when they moved to the coast. Klerup became associated as Superintendent of Developing with Rothacker Film Company on Diversey Parkway. From there he went with Emerald, later known as Reelcraft. While here he photographed a number of comedies as well as industrial pictures. It was here that someone suggested the possibility of projecting still pictures from 35 m/m film. Klerup immediately became interested and together with two associates organized the American Graphic Company where he designed and produced the first film stereopticon known as the Celograph. He found himself a little premature, however, and because of lack of capital he could not continue the pioneering of what he felt would some day be a real addition to the film industry. But, with true pioneering spirit, he refused to be discouraged and associated himself with C. J. Peterson where experiment was continued and a film stereopticon known as the "Arto" was developed. It was marketed by the Society for Visual Education, as the first Picturol Projector.

In 1925 the Society for Visual Education purchased all the Arto patents, dies, laboratories, etc., and Klerup joined the staff of the Society as Production Manager. In the last ten years he has designed a dozen or more different models of slidefilm projectors and has seen his dreams of years ago realized inasmuch as there are in use today probably 100,000 projectors of Klerup design.



POLA SCREEN

(Continued from Page 5)

highly-polished finish. In addition the set was lighted with the usual quota of high-powered lamps.

Diamonds! Diamonds! There were pretty diamonds from all the "inkies." Diamonds were spotted over the entire wall surface. Of course, a good cameraman should not worry about those little things. His duty is to take them out.

The little Pola-Screen came into service. Its usefulness heretofore had been that of an instrument of experiment. Now it must justify its existence.

The screen was placed on the camera, and proper adjustments were made. And marvel of marvels—the diamonds had disappeared.

Shots were made of a bathroom of white, grey, bronze and black finishes—all brilliantly polished. Through the eye of the Pola-Screen each objectionable kickback of light disappeared when proper adjustment had been made. The finished picture, made under most trying conditions, proved without a doubt the value of the new unit to the photographic world.

There may be times when the elimination of all reflections may reduce the value of a picture. It is astonishing to learn the latitude available in this respect. There is absolute control during the movement of the screen for a proper adjustment. All reflections may be shown, or toned down or cut out entirely.

During work on store fronts, where reflections from the opposite side of the street might attract attention from the subject matter, the reflection can be eliminated entirely or toned down.

The Pola-Screen is one of the most valuable friends a cameraman could have. It will aid him in the tight spots, and save much alibing. In the final analysis, it will do a job that nothing else in this world can do. The cameraman without one, is inviting trouble in jobs similar to the one just described.

The Eastman Company has produced a unit of which it may be justly proud, and the thanks of every cameraman are due to them for their efforts in his behalf.

Answer to Brain Teaser of April Issue

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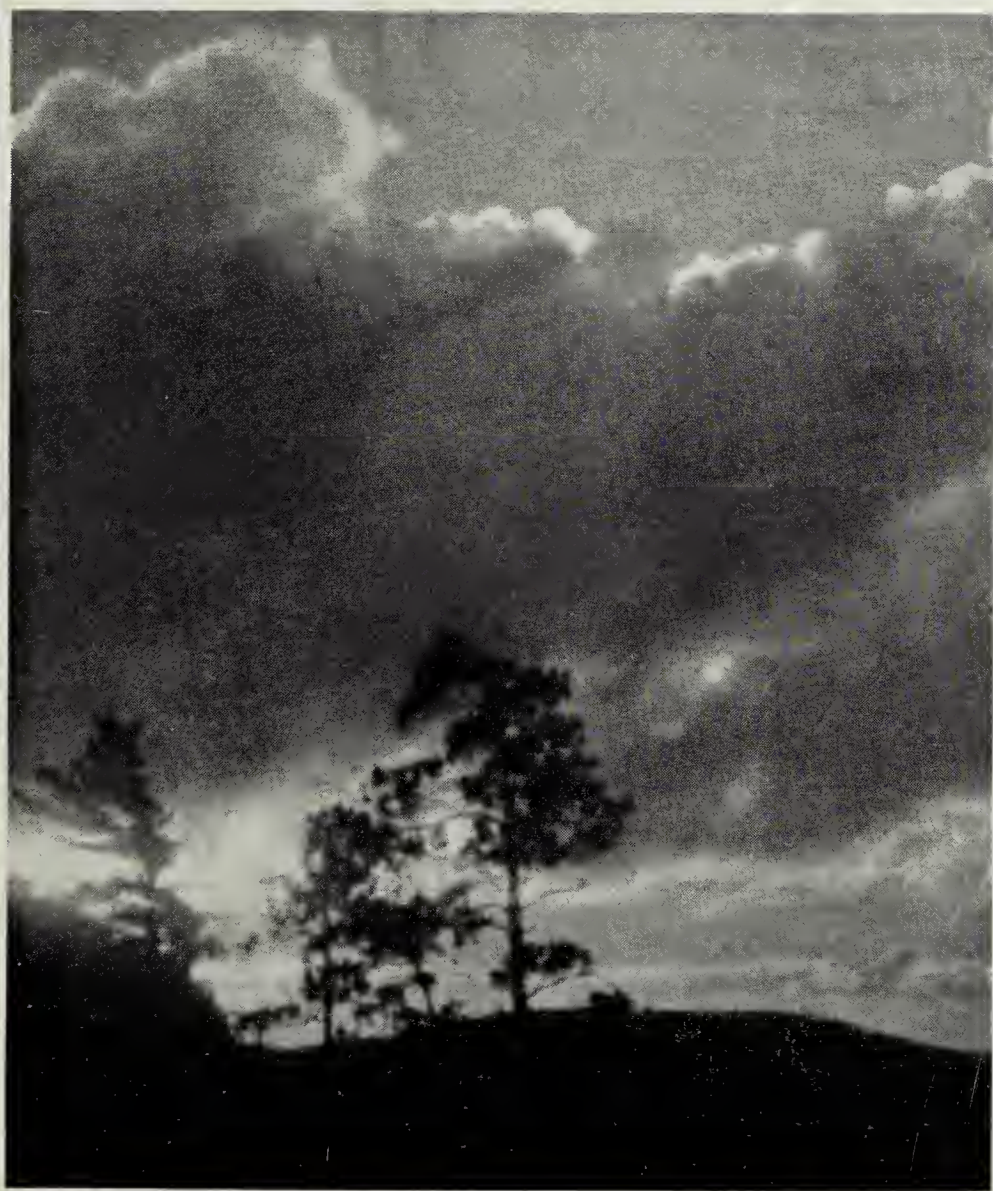
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A Sunset Study by Robert Tavernier

JUNE, 1936

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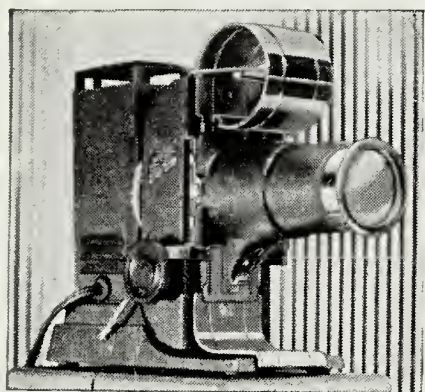
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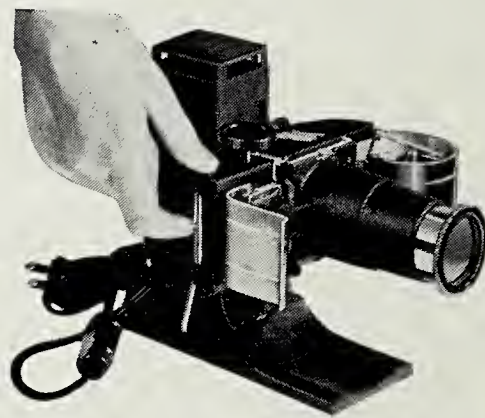
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LOCAL 666

By W. H. S.

Contrary to established custom and conformity with the International law, the 33rd Convention will open the second week of June at the Municipal Auditorium in Kansas City, Mo. International President Browne's action in deferring the opening date was occasioned by a decision of the Interstate Commerce Commission to reduce all railroad rates, becoming effective commencing June 2nd. Naturally, if the old order was adhered to and the Convention called as stipulated, the first week of June, the Alliance could not take advantage of the tremendous saving to be realized as a result of the I. C. C. ruling.

Delegates elected to represent Local 666 at the convention are Bertel J. Kleerup, President, and W. H. Strafford, Business Manager. They will make their headquarters at the Muehlbach Hotel, 12th and Baltimore Streets, Kansas City, Mo.

Conferences on the Newsreel Agreement are ended and the contract has now been sent to President George E. Browne for ratification.

Agreement provides for an increase in minimum scale for regular employees to \$100.00 per week for 320 hours in an eight week period, overtime to be paid for hours in excess of 320 hours.

Freelance cameramen are to receive \$35.00 per day, straight, overtime after eight hours.

Full text of agreement will be published when ratified.

Cameraman Makes Extra Good

Dave Oliver, for eighteen years a Newsreel Cameraman, was assigned by Universal Newsreel to cover the winner of the Irish Free States Sweep Stakes. Included in his assignment was a sequence of a "gag man" who was supposed to tell how he happened to "lose" the Grand Prize. The "gag man" made such a poor showing that Brother Oliver offered to show him how to act for the camera. Oliver did the part so well that the part was made with him as the lead and "Believe It or Not," it was a hit all over the country. Now cameraman David Oliver has a contract at 30,000 "new deal" dollars a year as a natural born comedian. From now on Dave will be known as John Q. Dohp, America's first Newsreel Cameraman who got a contract for being funny.

"The Knight of the Lens"

By J. ROY HESS

Poets and writers
 Have sung of great fighters,
 Of Knights, the great warriors of old,
 If I had my say,
 I'd sing me a lay,
 To the present day Knight, just as bold.

* * *

With nerve cool and steady,
 He ever is ready
 For action right there on the spot.
 He climbs dizzy heights
 And when all is at rights,
 Serenely prepares for "a shot."

* * *

To describe with one name
 The right word is "Game,"
 No hazard too great for his clan.
 So it gives me much pleasure
 To praise beyond measure
 A "Real Guy"—The Camera Man.

Every once in awhile we read about some Hollywoodian movie star's escort slapping some "Photog" on the kisser. The thing that burns me is to think back before said movie star had reached stardom. At that time they were willing, yes, and some cases actually begged for publicity pictures—that Mr. and Mrs. John Public might know them. The same "photogs" that are now getting slapped around by certain "big-he-boogie-men" might have been responsible for Miss Tillie Sauerkraut getting her first break in the limelight, when she was a "queen" of some Lemon Show, that finally won her a movie contract. It must be different when they get up in the "bucks" how they are "pestered" by their public who, in the final analysis, pay Tillie's salary. Tillie shouldn't forget that the "slide-down" is well greased (much faster coming down than climbing up) and certain "photogs" will not be there to give Tillie a helping hand—he may remember the day that one of his "brother-shooters" was slapped down for trying to make an honest living.

Once more we appeal to cameramen to send us pictures suitable for reproduction on the cover of this magazine. Due credit will be given the photographer.

Old "Timers" in the motion picture business are invited to send in their biography with a photograph for use in Cinemabiography column.

A heavy-set man stepped up to a newsboy on a busy corner and said, "S-s-s-ay, boy c-c-c-can you t-t-tell me where the p-p-p-post-office is?"

The newsboy made no attempt to answer, so the man tried again: "W-w-will you p-p-pl-please tell me w-where the p-p-postoffice is?"

The newsboy still remained silent and after a few more vain attempts, the man walked angrily away. A pedestrian standing a few feet away stepped up to the boy and asked him why he had been so rude, to which the boy replied—

D-d-d-do you th-th-think I w-wanted my b-b-b-block knocked off?"

BUSINESS FILMING

By MERVIN W. LA RUE, I. A. 666

USERS of magazine space have long since learned that it is futile to try and sell more than one idea at any one time. To try and do so is only scattering shot. The same rules that apply to the preparation of a successful advertisement also apply to the preparation of a successful business film.

The film must be prepared for a specific purpose. Too many ideas will spoil its effectiveness. No matter what its purpose, it must be closely related to the merchandising program. If it is a training film for salesmen it must talk the language the salesmen understand. If the film is to reach and appeal to the consumer, then we must talk *that* language. If we plan a film to be used in teaching an elementary subject in the schools, then obviously we must talk the language of the child.

Intelligent selling today is the essence of good teaching. Visual teaching and selling is no longer a vogue or experiment, but a permanent medium which has carved for itself a definite place in the modern scheme of things. American business has blazed the way for our educational authorities in the use of the screen for teaching. Marketing men have learned much about the proper way to use it. To illustrate this, suppose we list a few of the many ways the motion picture is being used in teaching by business organizations as a means of increasing and bettering their business. . . .

1. Giving salesmen essential information about complicated products.
2. Showing jobber's salesmen how to hurdle price objections.
3. Raising the efficiency of service men by showing them new and approved methods.
4. Making better retail dealers by *teaching* more efficient store operation.
5. Giving salesmen a quality story by explaining care and precision used in manufacture.
6. Getting dealers and jobbers to push—not just stock—a product by showing its profit possibilities.
7. Getting dealers to understand national advertising programs and *teaching* them how to tie up with them.
8. Training retail clerks or salespeople in better selling methods.

All of this is essentially good teaching and produces returns in increased sales.

The schools have learned much relative to the use of the movies from the business man and it is interesting to note that some of them have also learned to apply the same methods to the sale of *their* products. As an illustration. . . .

Many more years ago than the writer cares to recall, the family physician pronounced those never-to-be-forgotten words, "It's a boy."

Each succeeding year in the boy's development, we have had to face new problems relative to his health, happiness, and training. Last year it was "Summer Camp."

Almost before the snow was gone the lad had started his selling campaign designed to break down our sales resistance. As the warmer days of spring approached and the campaign continued, Dad could not help but contrast the scenes of the boys playing marbles in the streets

and baseball in the alleys, with his own boyhood—a silver tinkling brook—a rod and line—trout and bass that were easily lured with a worm or grasshopper—the "ole swimmin' hole." Ah! That was summer!

So many of the boys of today have never known the joys of such a summer. They never have any relief from the smoke and dust, the hard pavements, the brick and mortar of the cities. What of *our* boy during the long summer days to come? Would he be playing ball in the streets, menaced by traffic, or would he spend the summer out of doors amid the surroundings that Dad enjoyed? Maybe the idea of summer camp was not such a bad suggestion after all. The boys' campaign was evidently producing results.

We secured camp literature from many sources and studied booklets, maps and photographs until we were completely confused. What camp and where should we send him? His health and happiness depended upon our decision and we could not afford to make a mistake.

The Lad's mother wanted to go out and *see* some of the better camps before making up her mind, but even though we could afford the time and expense to do this, it was impossible. The camps were not yet open, and unless we could see the camp in operation and meet personally the men and women in charge, how could we make an intelligent decision?

Fate here took a hand, or perhaps we should call it intelligent selling. One camp we had written to and which was operated by one of the better schools for boys, replied stating that their representative would call upon us within a day or so and would like an opportunity of showing us, with the aid of motion pictures, just how they were equipped to care for our boy during the summer months. This sounded interesting.

In due course the representative arrived—one of the counselors of the camp—a man who had lived and worked with boys for years. With one of the smaller talkie projectors now on the market, and designed for this type of work, we found ourselves actually making a tour of inspection of the camp while comfortably seated in our own living room.

We arrived at the camp with the boys and the counselors who came with them. We made new friends and selected our tent mates—we unpacked our belongings and removed our city clothes—we spent our first night in the open, and at the sound of reveille were out of bed with the rest—we enjoyed the pajama drill—a dip in the "ole swimmin' hole"—and then climbed into our clothes for tooth-brush drill. When we heard the call for mess we were first in line for breakfast and—oh! What an appetite! We followed the various groups after breakfast when they left camp with their counselors and enjoyed hikes, woodcraft, boating, bathing, fishing, horseback riding, boxing, baseball, tennis, golf and all the sports so dear to a boy's heart. As we saw the evening campfire fade out and heard the bugle sound "taps" we could vividly picture our boy amid such surroundings. A sale was made.

That was last year, and now the boy's sales campaign is again at its height, only this year our decision is a simple one. The motion picture produced a lasting impression and we are no longer in doubt as to *what* camp to select. The only problem is a financial one which has already been quietly settled by leaving it up to Dad.

VI'S KRAX

I AM sorry folks, but I forgot to write a column last month. Maybe some of you guys were glad.

Attention "Assistant Cameramen." Whenever you have to wash your tripod just drop a few lines to a certain assistant at Detroit and he will be sure to tell you how he did it with powdered "Glue."

Harold Kinzle, assistant to Fred Hafferkamp at General Film Company, is expecting a little "Fire Cracker" at his home in July.

A certain Soundman has appeared in this office five times in the last month in five different costumes. First, black shirt, blue shirt, grey shirt, white shirt, and just the other day a sweat shirt. If he comes in with another outfit I'll tell his name.

The above reminds me about the judge who had a man before him who was arrested for being a nudist. The judge asked him if he was married and the nudist said he had been married three times and the judge asked him if he had any children and he said yes, 18 with the first wife, 12 with the second and so far he had 6 with the third wife. With that the judge turned to the bailiff and said: "Discharge this man, he hasn't had time to get dressed."

"Noise Catchers," nix, not one of the many we have around here can eliminate the noise in the radio that was given to Cinema Digest, and I thought that "Noise Catchers" knew something about radios.

"Newsreeler" Dave Oliver wins a contract for being a comedian, why newsreelers have always been comedians to me.

According to that bird they call the "stork" he dropped a little bundle of happiness on the "Soitz's doorstep." Please, Ray, let us know whether it was a boy or girl.

Well, I'll be seeing you next month. I have to go out to the Dunes this week-end and get sunburned.

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—Emile Montemurro

Picturol Projector Progress

By MARIE WITHAM
Society for Visual Education, Inc.

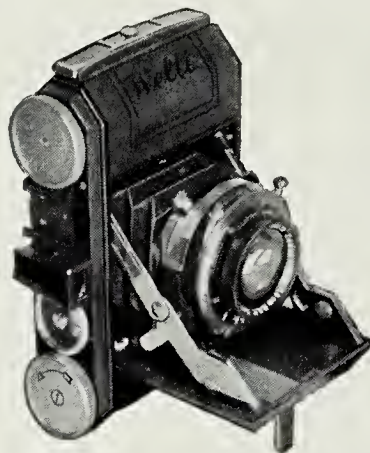
PURSUIT of the purpose of its founders to develop new and useful equipment for the visual presentation of all sorts of subjects taught in schools and other educational establishments, early brought the Society for Visual Education face to face with the "stereopticon problem." Briefly stated, it was this: With the relatively expensive and cumbersome glass slides and projectors then in use, comparatively few schools, libraries, clubs or churches had found it possible to accumulate usefully large and varied collections of lessons or lecture illustrations, to make the material on hand readily available to any and every class or small study group, or to add to the collection even the minimum illustrations for new subjects or modern developments in older subjects; how, then, reduce the expense and the physical handicaps so as to put A-1 stereopticon material within the reach of almost everyone?

Motion pictures on 35 mm. stock had been made for use in schools and churches, and industry was beginning their use for sales promotion and good will. Experiments with heat-resisting heat-absorbing glass had made it possible to stop the mechanism of portable motion projectors so as to show selected frames as still pictures on the screen. Double aperture pressure plates of polished glass had been devised to hold film flat while at rest for projection. These were the elements from which the modern Picturols or film-slides, and their projectors, were developed.

From the Model "A" Picturol Projector of the 1920's, with its high base and plunger-operated intermittent, which projected only single-frame 35 mm. pictures and had a 165 watt lamp and but a moderately efficient optical system; to the Models "F," "Q" and "BB" with their convenient operating features and superior illumination, is really a long trip. Science and Mechanics combined have made this progress in great strides, spurred on by experience and growing demand not only in the strictly educational field but very importantly also in the industrial field and more recently among the thousands of miniature (35 mm.) camera owners—including those who have become enthusiasts in nature color photography.

The last word to date in the film-slide projector field is the S.V.E. TRI-PURPOSE Model "BB," which takes on just about everything yet devised in the form of still pictures on 35 mm. film. It masks for single-frame or for Leica (double frame) size. It swivels for horizontal or vertical pictures. It provides for projection of individual frames mounted on or between 2"x2" glass plates. It concentrates the light from a 100 watt lamp so as to satisfy the eye even with color projection. In recent tests it gave surprising results with a twelve-foot picture, projected in a twilight room *directly upon a standard sound screen*, which perhaps is visually more translucent than a thin bedsheet. In addition to all this, there have been in use for several years automatic film-slide projectors, and film-slide projectors used with sound-on-disc attachments.

While no corresponding tendency has yet been observed in the motion picture field, the Picturol or film-slide development at present, especially for home use, is toward the double-frame picture on the 35 mm. film. This is due to the phenomenal expansion of the use of such "candid" cameras as the Leica, Retina, Super-Nettle and Argus, making pictures of double-frame size, so conven-



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ient for circumstantial purposes, for copying manuscripts, and for inexpensive natural color photography. And it is a current satisfaction to know that present Picturol Projector models protect valuable and irreplaceable film-slides from damage by heat or friction, and at the same time project them excellently.

The field has been viewed from so many angles, and entered by such varied groups, in the last decade and a half that a confusing array of names has arisen for the picture material. Film-slides, slidefilms, filmstrips, Picturols, all mean the same thing, except that the latter is a trade name designating the film-slide product of the Society for Visual Education, Inc. It is believed that this widening trade field would benefit by uniting upon one general name for this material, with producers free to use their trade names for their particular products.

BIRCH BARKS

By
HARRY
BIRCH

"LIGHT AND A YARDSTICK"

FOR many years much has been said about light meters—for and against. The writer does not wish to convey the thought of telling any individual what he should do or how he should do it. Nay, Nay, that is one's own privilege, to do and think as he so desires.

In submitting this column to Cinema Digest, which by the way is headed for leadership of cinema publications, it is indeed a pleasant privilege to pass on some bit of knowledge that may help someone, somewhere.

I started out to talk about light meters, so getting back to this subject, I oftentimes wonder how much real thought is given this topic. Eavesdropping amid a group of cinematographers, when meters are the subject of discussion, one hears—"Meters, Oh! that's the bunk" or "A good cameraman don't need a meter" or "I wouldn't shoot a scene without a meter" or "A meter saved my neck at so-and-so," etc.

It seems to me that this machine age that we are living in should teach many of us new methods of proving various problems. For instance: you enter a grocery store and order six pounds of sugar. What would you think of your grocery man if he poured a couple of scoops of sugar in a bag and held the bag up and said "I think that's near six pounds"—or you drive into a gas station and ask for ten gallons of gas—the attendant has a hose attached to a barrel, he runs some gas into your tank and at any time he may stop and say, "I think that's about ten gallons" or you stand on the side lines and watch a surveyor measuring a block of land—suppose he (without any instrument) held his hand up to his eye—and squinting said eye, says, "I think that's about one half mile"—well, you would probably think they were crazy.

But we don't see these horrible mental tests in this day and age—the grocery man carefully weighs your sugar on tested scales so that you know you are getting the right amount; the gas man measures your gas with tested pumps and with the aid of an instrument, the surveyor carefully figures land—they don't guess—they know.

There are hundreds and hundreds of other such examples that could be cited, if space permitted. It is a far-cry from the grocery man, the gas man or surveyor to the motion picture cameraman, but motion pictures are our business, let's talk about "us" for a while. I have been on jobs where news men, industrial men and, yes, production men, working side by side—you hear things like this—"Swell day, hey what, looks like an F.16 light" or "What stop you using." On a dull dreary day you may hear "What a hellova day—I wonder if 3.5 will be enough."

And so it goes!

Regardless of what may be said here or any place, we will still hear discussions—pro and con—about weighing or measuring light.

Starting with the July issue of Cinema Digest and continued on until this series is finished, I am going to try, with the help and co-operation of manufacturers and technicians, to give in this column facts and figures in detail, starting with the film base and emulsion, its manufacture and the scientific formula of construction—the methods of obtaining uniform speed of emulsions, trying to convey the bearing this has with proper exposure and

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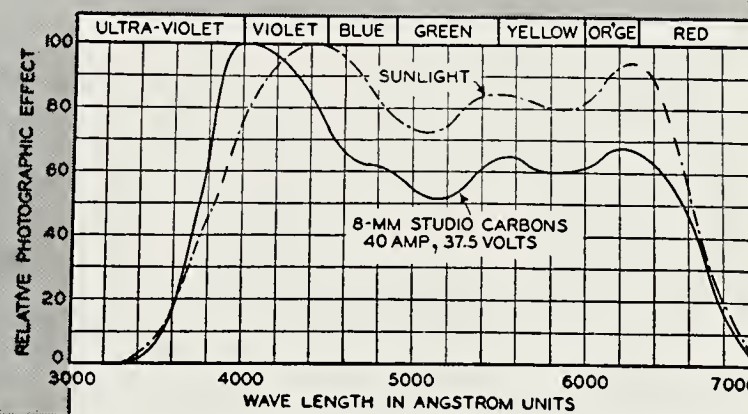
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if an instrument for measurement improves or is a detriment to quality negative and last but not least, the procedure of developing a properly exposed negative.

This continued article on measuring light is printed in the interest of those engaged in the craft and when finished you alone will be the sole judge. "Am I right or am I wrong?"

See you in July!

Snoopin' the Lens Snoopers!

By RED FELBINGER, I. A. 666

WELL me and Lippert blew into Kansas City this A. M. to cover the Kansas Relays down Kansas way . . . about 45 miles down the pike from this metropolis . . . well I personally busts into this burg of Kansas City with a bad taste in my mouth for the village as I kinder heard in the past it is the joint where the newsreels exile their boys to . . . sort of a "Newsreel Siberia" . . . well after I get off the train I got a couple of hours to soak up whiskey sours with Lippert before shoving off for Lawrence, Kansas, and the relays, and we remember the latest exile the newsreels got out here is Jack Barnett . . . so we calls up this ole Chicago lens snooper and he comes down . . . and after chewing the fat with said exile, we find he is batting out more stories in this so-called Siberia of the Newsreels than most us wise guys is around the big burgs . . . Jack even goes down to look over the Relays on his day off and he explains how he is knocking off one national story after another. . . . and I ain't doubting the bird since I see the newsreel release sheets . . . Here is one young newsreeler . . . (I don't mean in experience) but this guy Barnett ain't gettin' old enough yet to be continuously screamin' about how lousy things is . . . how he is shoved off to hell and gone . . . this bloke is really braggin' how swell things is . . . in fack he is only got one real worry at present . . . and that is, is this new arrival over at his house in June going to be able to make the grade as an apprentice up at 666 when HE grows up . . . of course if HE turns out to be a SHE . . . okay anyhow Jack, SHE can come up and play jacks with my little SHE, Rita Joyce . . . besides I have found out the last few months apprentices in the Union ain't everything in this world . . . my little Rita gives me a much better chance to shop for cuter little yellow dresses and stuff . . . and after all who wants to raise a son to be a lug cameraman like their father, Red Felbinger or Jack Barnett . . . so just like I tole Jack Barnett on the ride down to Lawrence . . . when I saw for the 1st time this year . . . the leaves and blossoms bursting out on the landscape. . . . "Ain't Spring Wunnerful." . . . Lippert who was riding alongside didn't ketch what we were talking about . . . as Jack was worrying about babies . . . and me, ole-timer that I is, was comforting him . . . but this dope Lippert just couldn't get pepped up on the conversation . . . Lip was worrying who was taking the pomeranian out for a walk back in Chi. while he wuz on the road.

Virgil Bauers has entered his first complained versus this department . . . Bauer claims I spell his name wrong . . . I hope I got it right this time . . . Bauers also steps up and passes the gossip along to this department that the boys up at Wilding's new Chicago studio have annexed a new menagerie . . . Jerry Altfilisch introduced the new menagerie and Bauers alleges there is much rivalry among the boys in keeping the menagerie happy.

In reading the newspapers around Chi. I see where one of the big sport collumnists resorts to "Brain Teasers" to keep the customers interested in his collum . . . well always wanting the customers to read mine I guess I better play "copy-cat" . . . so here is my Brainteaser:

"How many letters on the alphabet?"

Answer: (quick by Norm Alley) Twenty Four.

Jack Barnett: (Looking over my back as I write this) Alley is nertz, there is only twenty-five.

Lippert: Both youse guys is nutz there is twenty eight. . . . and me not to start an argument but just to show how much interest brain teasers create . . . me, I am sitting here counting on my fingers trying to figger out who is right . . . youse guys what read this collum write in the correct answer . . . I'll give last years Cubs season pass to the first right answer that comes along . . . mebbe I kin get Bill Strafford as Judge in the contest as the newsreelers is too busy figuring out expense accounts . . . and that reminds me . . .

The Home Office auditing department efficiency experts of the reels thought they had all newsreelers pegged on making out "swindle sheets" . . . so . . . along comes the Pittsburgh flood . . . and the lens snoopers send in some entirely new idears on expense sheets . . . and here are some new samples:

(Names are deleted of course.)

"Drinking water daily gallon, filtered from drugstore .25 per gallon" (mind you the guy was surrounded by water too.)

"Horse purchased to get around flood zone . . . horse drowned last day of flood . . . \$65.00."

"Candles purchased for light in hotel room . . . \$2.00."

"Hand-car from railroad man . . . hand car jumped track into river . . . \$125.00."

"Suit sent down to tailor shop for press after wading in water . . . suit lost when water rose . . . had to make deal with Boy Scouts for shorts . . . in order leave hotel

(Turn to Page Fifteen)

Have you
sent in
your
subscription
to
Cinema
Digest



"KENTUCKY DERBY!"

By RED FELBINGER

STREET hawkers blare their wares, from balloons to extra special "track selections;" bar-rooms feature mellow "mint juleps;" department store windows are a riot of color in sports wear and the crowd in front of the Seelbach Hotel jam the walk so densely that it becomes impossible to pass by. This is the carnival spirit that ensnares downtown Louisville on Derby Eve. Tomorrow they'll run the annual "Kentucky Derby!"—the zenith of the sport of Kings in America. Every one is horse minded tonight and every one looks forward to the morrow, Churchill Downs and the bugle that will summon America's thoroughbreds to the barrier. All of America's horse lovers will be there to witness this climax; from the wealthy horse owners and their ladies, making a glorious pandemonium of color, down to the lowly colored boys who braved a "hosing" by the alert cops guarding the big fence back of the stables. They'll all be there tense when the big moment arrives; they'll gulp to the strains of "My Old Kentucky!" as the horses parade to post, and presently another Kentucky Derby will be run and pass into history.

This is Louisville at Derby Time as seen to thousands but there is one clique of men to whom the Kentucky Derby means a great deal more than just an annual classic of the turf.

To the veterans of the newsreel industry the Kentucky Derby becomes a holy annual pilgrimage of comradeship. Old-timers hope and pray to get "sailing orders" to the toughest assignment of the year. If a man fails on this assignment, finis is written to his position with his outfit; but no old timer tries to shirk the Derby assignment; every one of the old-timers to a man look forward to the glorious adventure of the three days at Louisville for the Kentucky Derby.

Trains carry the boys from different points to Louisville. They come alone and they come in pairs. Camera equipment is hurriedly checked at the depot and then the long tiring grind of finding quarters in one of the hotels. One drifts from hotel to hotel. Newsreel credentials are flashed, long untiring arguments are given hotel managers for the precious rooms and one meets the eternal "sorry but we are all filled up."

Presently one finds himself quartered with the rest of the gang of his own outfit in a big "sample-room" in one of the hotels. It's only a cot that serves as a bed, but you don't mind at the Derby. Don't ask how you found the rest of the gang; perhaps it's newsreel intuition; mebbe it's just newsreel luck but nevertheless, before an hour elapses here you are with the old gang, swapping lies and experiences of the past year. A year is a long time in the newsreel game and there are many incidents and events in the life of old friends who haven't met since the last Derby. Conversation is not made it is lived.

Then the boys of the competition drift in and the first session of the annual newsreel pilgrimage is under way. The boys become mellow with the spirit of comradeship; the boys drink to one another's health, some perhaps find a bit of recreation in a game of "black-jack;" a few become entranced in the annual session of "bone-rolling."

The din down in the street on Derby Eve, by the mob is terrific, but it does not penetrate the joviality of the newsreel congregation in the "sample-room" above. For here in this room the hidden squelched comradeship of the men in a glamorous calling has its one opportunity to

assert itself. Derby Eve for the newsreelers is the only unrestrained night all the boys of the competition get together on any given assignment in the profession. Conviviality on this Eve is the reward for the annual post-graduate renewal of a veteran's fitness to survive his calling. Time marks the end of this comradeship and with the dawn each newsreeler arises to again become an individual, competitive operator and assert his rightful claim of being a seasoned ace; and perhaps it is this test of a newsreeler to prove to himself that he still is a thoroughbred, much the same as the horses he will face, with his lens, that makes these old timers pray and fight for the honor of covering the Kentucky Derby.

There are many, many newsreel assignments of various assortment. Some are much easier and many are much harder physical work than covering a Kentucky Derby, but the Derby is the only assignment that assures an individual newsreeler of his confidence in himself. Ask any one of them, they'll always reply, "Aw the Derby is just another horse-race to cover!", but in their hearts each and every man assigned to the Derby feels a weightier responsibility on the coverage of this story than any other assignment that will turn up in the next year until another Derby is run.

And I'll bet that there is not one man in the entire Derby personnel that would shirk the assignment, should opportunity permit. The Kentucky Derby, truly is the classic of the newsreel "blue-bloods" and only thoroughbreds man the cameras, atop the club-house roof as down below, America's best three-year olds run to show their claim to distinction of "good blood."

The newsreel man assigned to the Derby arises with the sun on Derby Day, as we said before. He is a solemn determined man with an important job ahead of him. No breakfast until he gets his equipment atop the club-house roof. Much preliminary thinking is done. One trusts nothing, or no one, on this day. Your future is in your own hands. You even suspect the weather. Should "Old Sol" be beaming down, the newsreeler is not fooled. Perhaps even the Sun will desert you on the test, so one buys an umbrella and other necessary rain equipment that could impair camera equipment on efficient delivery. Then one rushes out to Churchill Downs. Choice positions go to the first to arrive and choice position is all important on the coverage of this assignment. It's almost the equivalent of a day's physical effort getting the heavy camera atop the club-house roof, but one does not feel physical effort on this assignment. Camera equipment has already been put into top shape for this assignment but no chances are taken. The equipment is again thoroughly gone over; checked and re-checked and by nine A. M. of Derby Day the entire battery of newsreel cameras are in shape and ready for action.

Cameras are then covered and the boys adjourn to breakfast; a quick gulping repast of hot-dogs and coffee and the rush back to the roof. Lenses have already been focused but each man goes back to an eternal focusing of his lenses and following with the pam handle. The boys try to cover their tenseness with yarns of other Derbies, now past. There's the yarn about the year it rained so hard and the lad who covered his camera with a changing bag and forgot to uncover his lens and shot the whole race with the changing bag covering his lens, not exactly

(Turn to Page Eleven)

ASSIGNMENT 101

By RALPH BIDDY, LOCAL 666

THE deep throated whistle of the good ship Thorold gave a couple of toots of farewell to Montreal and a couple of birds "cameraman and assistant" and a mess of camera equipment were on their way down the St. Lawrence River. The ship's captain call it "down" so down it must be. Nevertheless our direction of travel was north and east, so you figure that one out. Past quaint Quebec with its old forts and French customs and out into the Gulf of St. Lawrence and on the third day we reach our destination. Shelter Bay. What, you've never heard of Shelter Bay? Well don't be alarmed—not many people have. At any rate this little settlement is to serve as our base of operations.

By the way, did I mention why we are here? It's a lumbering and paper making picture for the Chicago Tribune and the "we" includes Alfred Jacquemin of Montreal and the writer. I learned later that the reason that they call this place Shelter Bay is because there isn't any shelter there for ships that are in the gulf, "like the reason they call a big long legged fellow "shorty," when he's about six foot ten tall. This old Gulf of St. Lawrence at this point is about eighty miles wide and quite often the wind and waves get playful and when that happens the smaller boats have to run for shelter. Of course you and I would make a dash for Shelter Bay under those circumstances, but in these parts the thing to do is run away from the Bay. Oh well, I can't quite figure it out but that's not in my department so on with the story.

After getting our equipment onto a scow and then ashore we settle down to find out what this lumber business is all about. Some nine hundred people make their home here, they have a pretty modern city considering that there isn't much of anything except trees and mountains and water between them and the North Pole, the latitude is 50 north just in case you are interested, and that reminds me this spot wouldn't be bad if you ever get a location assignment where you have to have northern lights, of course they aren't visible until after dark and you couldn't very well shoot them anyhow but that's beside the point, they really are a very pretty sight, they vary in intensity a lot, depending on atmospheric conditions but when conditions are right they look as if some one had placed about 50 5,000-watt spots just below the horizon and shot them straight upward, occasionally it will appear as if some one starts playing with the lamps, as they start to do a little flickering or dancing, and then again you will notice some slight color changing, however the colors are not very pronounced, at least I didn't happen to catch them with much coloring. After asking a dozen different people what the cause for this effect was and getting as many different answers mostly in French I just decided to let the whole thing drop. Of these 900 people in Shelter Bay about 895 of them speak and understand nothing but the French language and believe you me I had fun, having forgotten all that I learned in my two weeks course in high school French.

The children are taught nothing but French in the schools, and the school holiday is Thursday instead of Saturday as we observe in the states. This seemed very

strange to me that just a few days away from home a person can find such strange ways.

We soon found that we had to go about 25 miles further back inland before we reached the lumber camp region, where the actual tree cutting takes place. For about 20 miles of this distance we had a road which was built for trucks to haul supplies over, at the end of this road was what is known as "cache No. 2." Mr. Webster's book says a "cache" is "a hiding place or storing place, as for stores or provisions" and that my dear children is exactly the way the word is used in this instance. From the "cache" all of the individual logging camps are supplied with food and clothing. From the "cache" on into the camps travelling has to be done by water while the streams are open; the good old fashioned pick 'im up and lay 'im down method or by dog team when the ice forms. One morning a party of four of us shoved off in a put-put boat for a camp where we are to do some shooting; after getting stuck in the ice a time or two and having the engine freeze up on us we finally made the camp by lunch time. A lumber jack's lunch is something too, a couple of kinds of meat, fresh meat at that, and of course some salt pork, soup, potatoes, pie, cake and tea. If only they wouldn't serve tea in tin cups, it would be swell. To be a real lumber jack you start out the day by rating a big plate of beans and salt pork for breakfast, needless to say the writer would not qualify as a lumber jack as I started out to say a few lines back. After lunch we start out to make some pictures. If you think the sun goes down early in the midwest in the fall you are mistaken because in these parts the sun starts flirting with the horizon about two o'clock in the afternoon and by two-thirty o'clock you might just as well buckle up your kodak. After getting a few shots we started back to the "cache." Fortunately our pilot knew the water very well as our trip back to the "cache" was made after dark and these rivers and lakes were full of logs, stumps and the like, or I would be pulling icicles out of my vest pockets yet. After a couple of days of bad weather we were able to visit some other camps and get all the wood cutting scenes we need. The lumber jack's life is a hard row to hoe, up at daylight, cutting trees all day long until dark, eating and then to bed, miles and miles away from any civilization, dog team or sled the only means of transportation in winter. In the section I was in, women or liquor are not allowed in the bush, "bush" is the name applied to the lumber camp area away from the main town of Shelter Bay. After the Balsam and Spruce are felled and cut into four foot lengths, they are stacked and scaled, measured and culls discarded, they are taken on slides to the rivers where they are piled until the spring. Then they are floated down to the Gulf where the logs have the bark removed. Here they are loaded on freighters and taken to Thorold, Ontario, where they are ground up into pulp. After certain chemical operations the pulp is spread out on a fast moving conveyor where it is pressed, rolled, dried, etc., until it finally reaches the machine where it emerges as paper. The next time you unfold your morning paper at breakfast just think for a moment of what some lumber jack has had to go through so that you can have your morning paper, personally I'm on my third handkerchief right now.

"KENTUCKY DERBY!"

(Continued from Page Nine)

said in jest and disrespect for this unfortunate of the Derby; also the yarn about the guy who had a tricky twelve lens and his whole story of the race was "too soft" to use. Nay, indeed, these men don't belittle the misfortunes of boys who have worked on that same roof and who have had misfortune trip them up; these boys are too seriously aware that misfortune could and might trip them up, and their outfits, on this test of newsreel stamina.

It's a long time from eight A. M. to five P. M. for this hardy crew atop the club-house Roof.

The fourth race has been run. The gay crowd down below is building up to a happy climax in the running of the Kentucky Derby now. Atop the clubhouse roof the newsreelers are no longer swapping yarns. Cameras are turned over for a few feet; everything seems to be in working order. Derby time approaches.

Suddenly the bugle . . . they are coming to post . . . lenses are hurriedly refocused for a final check . . . one no longer knows he is hemmed in by classmates taking the annual test . . . each man faces his barrier alone . . . here they come . . . the parade to post . . . a few quick shots . . . mebbe the sun is shining . . . mebbe it is raining like hell . . . who cares . . . It's the Derby . . . the horses are nearing the barrier . . . pretty soon they'll be "off" . . . and now comes the "eternity" in a newsreeler's life atop the club-house roof . . . the horses are at the starting line . . . newsreel fingers are frozen to camera buttons and cranks . . . they're having trouble getting the horses off . . . two minutes . . . five . . . ten . . . will this camera work? . . . are my lenses sharp? . . . why don't they get them off . . . fifteen minutes . . . will this race ever start . . . it's raining now . . . I gotta open up my lens . . . I can hardly see them in my finder . . . seventeen minutes . . . Lord, I'm shaking all over . . . please lady luck give me a break . . . "THEY'RE OFF!" . . . gee I hit the button just on time . . . looks pretty good in the finder . . . the old six inch is working swell . . . this pam handle is working smoothly . . . gotta keep the entire field in the lens . . . passing the club-house now . . . into the south turn . . . gee if this old outfit only sticks . . . if she buckles now . . . I am through . . . could never reload in time to save my story . . . they're back in the stretch . . . I'll swing the eight inch on 'em now . . . success! Didn't lose much here . . . Gee I'm shaking . . . gotta get a good pan as they round back to the stretch . . . Look at that one horse step out . . . well I'll have to keep on him . . . here they come . . . I'm still on him . . . come on! come on! . . . has she buckled yet? . . . the finish line . . . well I'm on him anyhow . . . they've crossed the finish . . . "Who won? . . . who won . . . was it number five . . . or number nine? . . . the hell with the name . . . what number quick . . . I gotta get a close up . . . Yes! that's right, the winner, he'll come up last . . . what's his number? . . . okeh! okeh! . . . I got it . . . here he comes . . . I'm following him . . . I got him . . . they're putting the wreath on him now . . . It's all over . . . Jeez what a race . . . best picture race I've seen down here in the last five years . . . Swell . . . and did the old outfit stick by me . . . Boy oh boy! . . . what a race . . . what a day . . . say you know it's rainin' like hell . . . take care of the outfit . . . get it down from the roof for me . . . I gotta ship my stuff . . . boy what a Derby!" . . .

Another Kentucky Derby has passed into history . . . Thoroughbreds have run to prove "good blood" . . . and when you sit in your theater and see the Kentucky Derby pass before you on the screen, remember you see it through the eyes and lens of another thoroughbred! It takes "good blood" to participate in the Kentucky Derby.

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THE ELEMENTS OF TELEVISION

By C. P. MEEK
Local 666, I. A. T. S. E.

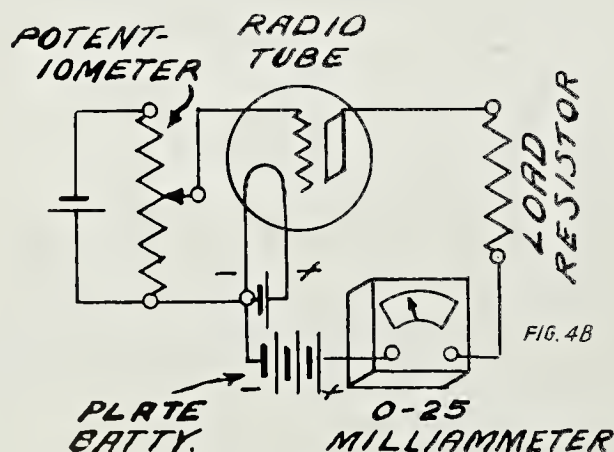
Illustrations by Carlson Studios, Chicago

Section VII—Comparisons of the Functions of the Photo-Electric Cell and the Radio Amplifier Tube

If a radio tube is to act as a detector or amplifier, a positive voltage is placed on the plate of the tube. The heated filament emits electrons which are drawn to the plate under these conditions, and a current then flows from the plate to the filament. In the photo-electric cell a positive voltage is supplied to the ANODE, and under proper conditions electrons will be drawn from the cathode toward it even if the cathode remains at room temperature. A current will then flow from anode to cathode in the cell.

In a radio tube the flow of current between plate and filament depends on the amount of emission of electrons from the heated filament, the amount of voltage on the plate, and the amount of voltage on the grid of the tube. The grid is the valve controlling the flow of current, being located in the tube between the other two elements.

To illustrate what happens within an amplifier tube, let an average radio amplifier tube, a resistance, a battery, a milliammeter (to measure thousandths of an ampere), and a potentiometer (a device with which to change voltages) with a small battery be connected as shown in Figure 4B. The meter will indicate a definite value of current flowing in the plate to filament circuit. If the potentiometer is varied to put a different voltage on the grid of the tube, the needle of the milliammeter will change from its original position. If the arm of the potentiometer is moved up and down to vary the voltage on the grid, the current reading of the meter will change in step with the movement. The movement of the arm of the potentiometer causes a changing voltage to reach the grid, and this acts as a valve to aid or obstruct the flow of current from the plate to the filament within the tube.

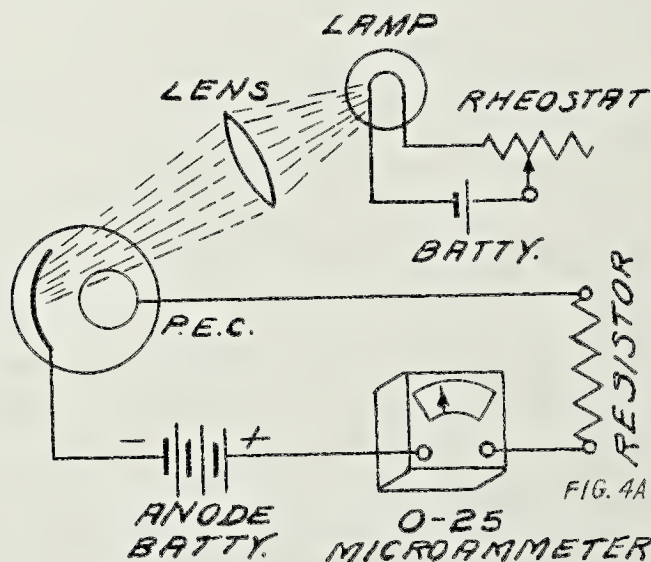


The conditions governing the operation of a photo-electric cell are similar, but here the flow of current depends on the electronic emission from the cold cathode, the voltage on the anode, and a source of light. The

cathode emits electrons in proportion to the intensity of the light, and thereby causes more or less current to flow between the elements within the cell. In this case LIGHT is the valve.

The amount of current in a photo-electric cell is very small. It will average anywhere from 1 to 15 microamperes (millionths of an ampere) as compared with a corresponding amount of milliamperes (thousandths of an ampere) in ordinary radio tubes. Consequently, a MICROAMMETER must be used to illustrate the functioning of a photo-electric cell.

If a photo-electric cell, a battery, a resistor and a very delicate microammeter are connected as shown in Figure 4A, electrons will be emitted from the cathode and



attracted to the anode, and a current will flow through the resistor. This will happen if the cell is in some location where light may enter through the window of the cathode. If the cell is in a dark room no current will flow in the circuit, and the meter pointer will indicate zero.

Under ordinary conditions, in the photo-electric cell hook-up a flow of anode to cathode current will be indicated by a small reading of the microammeter due to small amounts of stray light entering the cell. This reading might be about two microamperes. If the light of a lamp is shone through a lens system into the window of the cell, the meter will give a greater reading.

If the amount of light is varied by means of the rheostat (all other conditions remaining the same) the reading of the meter will vary with the brilliance of the light.

If the source of illumination is moved from the cell (all other conditions remaining the same) the meter reading will become less, indicating a smaller amount of current. If the light is moved nearer, a greater reading will be shown.

Again, if the amount of voltage on the anode is increased, (all other conditions remaining the same) the amount of current flowing in the cell will be increased.

Conrad A. Luperti Fund

AT the last meeting of Local 666 the members were notified that Former President Conrad A. Luperti was seriously ill and that should he recover he would be unable to work for several years. A motion was made and concurred in that Brother Luperti be given an Honorable Withdrawal Card and that the members be asked to subscribe towards a purse of money to be presented to Mrs. Luperti. The following have subscribed to date:

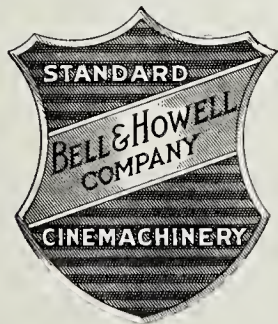
Jack Barnett	\$5.00	C. D. Beeland	2.50
Richard Ganstrom . . .	5.00	Webber Hall	2.50
E. C. Wickemeyer . . .	5.00	Fred Elias	2.00
John Niklasch	5.00	W. H. Strafford . . .	2.00
George Leontough . .	5.00	Rufus Pasquale . . .	1.00
Fred Felbinger	5.00	Harry Birch	1.00
Emile Montemurro . .	5.00	M. F. Stangl	1.00
Bertel Kleerup	3.00	Ralph Saunders . . .	1.00
Robert Tavernier . . .	3.00	Victor Lambert	1.00
James Buchanan . . .	3.00	Art Varady	1.00
Harry Peterson	3.00	H. C. Gantz	1.00
Robert Sable	3.00	Earle Crotchett . . .	1.00
Jack Flanagan	3.00	Total to date	\$70.00

This Fund will be kept open until July first. Come on fellows, send in a small donation to this worthy cause.

I. J. Stein, New Milwaukee Representative for Filmack

IRVING J. STEIN, for many years an exhibitor, and recently connected with the Strand Theatre Company in Milwaukee, has deserted the ranks of the exhibitors and taken over the post of Wisconsin Sales Representative for Irving Mack of Filmack Trailer Company.

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MINIATURE AND CANDID Photography —

Correction

Last month in this column a story appeared entitled "New Candid Camera" by E. W. Lowe. That author's name was placed there in error; the story should have appeared under the by-line W. H. S.

Hot Weather Processing

By E. W. LOWE

SUMMER is coming, and with it the question of how to develop film when the tap water runs 80° and there is no ice box handy.

For the users of fine grain developers the problem is easily solved. Simply add sodium sulphate (not sulphite) to the developer and develop at whatever the room temperature happens to be. If you have sodium sulphate *crystals* add 100 grams per liter (3½ oz. per quart). If you have anhydrous sodium sulphate, however, use only 50 grams per liter (1½ oz. per quart). The sulphate acts as mild hardening agent. At temperatures below 75° the sulphate will retard development unnecessarily and is not only useless but a nuisance. For development between 75° and 85° however it is indispensable.

Of course, at these higher temperatures, the developing times are considerably shortened. For instance with the Edwal-12 formula the times are: 12 minutes at 75°, 10 minutes at 80°, and 8 minutes at 85°F. for the common films. For Panatomic and Finopan use two-thirds these times, and one-half the above times for Micropan.

If you are using the Sease No. 3 or the Edwal-9 formula the times are: 20 minutes at 75°, 16 minutes at 80°, and 12 minutes at 85°F. for the common emulsions. These times must be cut down for the special "fine-grain" films in the same proportions as mentioned for the Edwal-12 developing times.

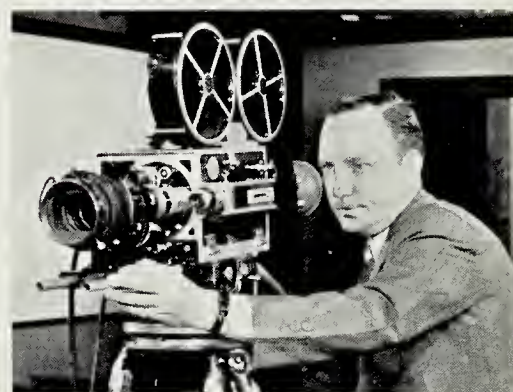
It is common practice to use a chrome-alum short stop and hardening bath between developing and fixing. This is not necessary if sodium sulphate is used in the developer. Indeed, if very big enlargements are wanted, it is better to use a plain bath of distilled water or a 10% sodium sulphate solution as a stop bath, since the chrome alum bath is quite acid and is apt to cause small pin-holes due to the action of the acid on the sulphite carried over in the emulsion from the developer. It is advisable, however, to use a chrome-alum fixing bath rather than one containing potassium alum, since chrome-alum is a better hardening agent.

From the standpoint of graininess, it is better to develop at 70° than at 80 or 85°, *provided that all the processing solutions are at the same temperature.* However, development at 75° produces very little more grain than at 70°. More coarse grain is caused by having some of the solutions cool and others not so cool than by using warmer solutions that are all at the same temperatures, even though development is done at 70° in the first case

Cinemabiography

NORMAN ALLEY, born in Chicago, Illinois, 1895, started as Still Photographer for Chicago Tribune in 1910; was the first newspaper man to reach the scene of the Dayton, Ohio, flood of 1913, getting there by row boat.

Alley went to work for Hearst International News as motion picture cameraman in 1914 and was sent to the Mexican Border while the hunt was on for Villa. In 1917 he joined the Signal Corps and was sent overseas where he served for twenty-two months, during that time he was made 2nd Army Photographer and served with the 88th, 89th and 35th Divisions. After the



Armistice was signed he was sent to Paris to supervise the editing of the war films at the Pathe Laboratory there.

In 1919 Alley returned to the United States and Hearst International News and a year later was put in charge of the Chicago office.

In 1929 he was moved to New York and made "make-up" editor of the reel. In 1932 "Norm" started freelancing and shortly after became official photographer of the "Flying Hutchinson's" on their ill-fated attempted non-stop flight across the Atlantic Ocean, their plane was lost to the world for four days. Alley and his soundman, Jerry Altifisch, and the Hutchinson family were found by a Scotch fishing schooner marooned on a small ice covered island, the plane had landed and sank near by. Norman Alley has the distinction of making over 1600 newsreel subjects, which is probably a record of some kind. The year 1934 found Alley back in Chicago as Art Director of the Chicago Herald and Examiner and shortly after again in charge of the Chicago office of Hearst Metrotone Newsreel. Norman Alley has two hobbies—aviation and midget auto racing. In 1911 he learned to fly and operated his own aeroplane in 1913, he flew in France with Eddie Rickenbacker. He started the innovation of midget automobile racing and is at present General Manager of the Midwest Auto Racing Association which operates indoor and outdoor tracks. The latest, "Riverview Speedway," has just been opened and is declared to be the finest in the world.

and 80° in the second. When all the solutions are at room temperature, one cannot be cooler than the others, and there is no chance for strains to be set up in the gelatin due to sudden temperature changes in the wet soft emulsion. After the emulsion is hardened in a chrome-alum bath it can safely be washed in running water at 80 or 85°F. and dried as usual.

The development of papers, especially the fast bromides such as P.M.C. and Brovira is often a problem in hot weather, since the high temperature causes metol or amidol to produce fog. The remedy lies in the use of a low reduction-potential developer such as glycin. The Edwal 102 glycin developer for papers can be used up to 90°F. on the bromide papers with very satisfactory results. This developer uses trisodium phosphate as the alkali and since T.S.P. does not swell the gelatin as much as carbonate, the prints do not frill or blister in the warm solutions. If T.S.P. is used instead of carbonate in metol-hydroquinone developers, they can be successfully used up to 75 or 80° but even with T.S.P. these high-energy developers tend to fog above 80°.

SNOOPIN' THE LENS SNOOPERS!

(Continued from Page Eight)

to ship film . . . for shorts to Boy Scout . . . \$5.00."

"Helper assist carry camera equipment over bridge five miles long to get to other side flood . . . \$5.00."

. . . and if you guys think I is making these up . . . I actually saw most of the above expense sheets . . . and what's more . . . they was legit . . . so help me . . . they tells me. . . .

Mebbe the above will give a couple of guys a laugh . . . but to an old-timer newsreeler . . . so what . . . did you ever cover a flood? . . . and live on a lousy sandwich now and then in a couple of days of hard work . . . did you ever sleep in the same clothes for days . . . when you got a chance to sleep . . . in a chair in some refugee camp . . . did you ever worry how in hell you wuz gonna get your stuff into New York on time . . . on the biggest story of the week? . . . well if you did, then you know why newsreelers get mad when guys get up and say you is making dough on the expense sheet. . . . They is lucky when they break even . . . and I don't mean mebbe. . . .

Well I gotta go and call up the wife and see how my baby Rita Joyce is doin' . . . so until next month . . . yoors trooly. . . .

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AUGUST, 1936

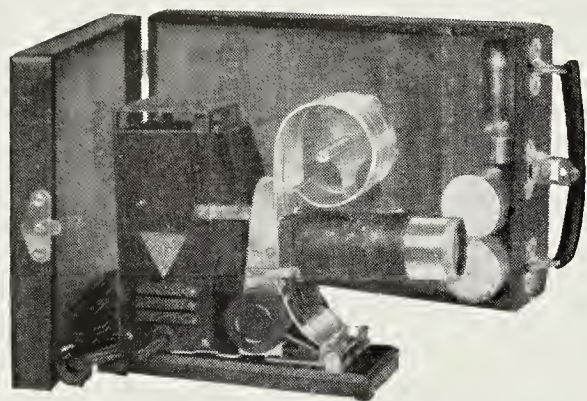
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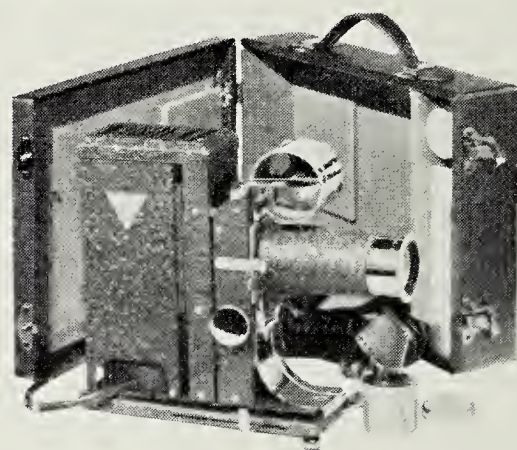
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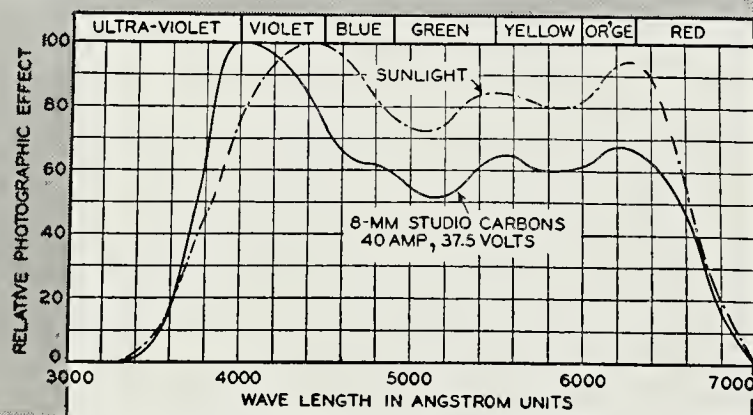
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LOCAL 666

By W. H. S.

A new agreement governing the salaries and working conditions of Newsreel Cameramen of Local 644, New York, 659 Hollywood, 666 Chicago and 665 Toronto, has been signed between the Newsreel Producers and the I. A. T. S. E. and M. P. M. O. of the United States and Canada.

This agreement covers a period of two years and provides that all Newsreel Cameramen now employed or employed hereafter shall be members of one of the four Locals designated above, and that they shall not be assigned to nontheatrical, industrial or production work without permission of the International Alliance.

The standard week is set at 40 hours or 320 hours in an eight week period. It provides for extra insurance of \$10,000 for aeroplane work over and above the liability workmen's compensation and the new security insurance. Newsreel may employ apprentices to assist cameramen not to exceed 20 per cent of the total cameramen employed. Apprentice must be acceptable to and abide by the rules and regulations of the Local in whose jurisdiction they are employed. The scale is set at \$100.00 per week for regularly employed cameramen, \$35.00 per day of eight hours for cameramen employed on a daily basis; overtime to be paid for time over eight hours.

A new agreement is being prepared for Industrial Cameramen to take the place of the present agreement which expires September first.

FRANK D. FOX, DEAD

FRANK DAVID FOX, former member of Local 666, I. A. T. S. E., prominent in the motion picture business in Minneapolis for 25 years, died there at the age of sixty after becoming ill on a fishing trip.

In 1934 he retired as president of Sly-Fox Film Company, manufacturers of theatrical trailers and advertising movies, this firm is now owned and operated by Earle C. Sly.

A fifth section of the Academy Technicians Branch has been authorized today to be made up of technicians affiliated with the motion picture supply, service, and development companies in the industry, and will function similarly to the already active Art Directors, Film Editors, Photographic, and Sound Sections of the Branch.

Membership requirements in the Technicians Branch, which formerly limited membership in this Branch to technical employees of motion picture producing companies, have been revised by the Academy Board of Governors upon the recommendation of the Technicians Branch Executive Committee to now permit the enrollment of non-studio employed technicians in the Branch.

The formation of this fifth section, which will be known as the "Equipment Section," will result in a much closer co-ordination in the organization activities of the studio and non-studio groups.

In announcing the formation of this section, Major Nathan Levinson, Chairman of the Technicians Branch, also announced the appointment of K. F. Morgan of Electrical Research Products, Inc., as Chairman of the new Section for the remainder of the Academy fiscal year, until the Branch elections which are held each year in August.

Filmack Artist Drowned

Donn Cooper, 24 years old, an artist employed by the Filmack Trailer Company, Chicago, was drowned on July 10th while swimming in Lake Michigan with several other members of the Filmack staff. Cooper dived from a rock and did not reappear.

The body was recovered within a few minutes but a fire department rescue squad was unable to revive him.

William Skall, technicolor cameraman, broke his ankle when he fell over an embankment while shooting on Warner Brothers "God's Country and the Woman," at Longview, Washington.

Friends of Charley Beeland will be interested to know he was married to Miss Florence Hyatt August 4th at Atlanta, Georgia. Congratulations and good luck, Charley.

Prexy Bertel Kleerup passed out the cigars last week in honor of the arrival of his second son.

Shorty Richardson just returned from the east where he shot 20,000 feet of slow motion of the Olympic track and field finals at Randall's Park, New York City.

Gordon Avil and Marty Rolands just returned to Detroit from a two months' tour of Georgia, New York, Maryland and Wisconsin, where they were making a picture for Jam Handy Picture Service of Detroit, Michigan.

Roger Fenimore and Oscar Ahbe on vacation from Jam Handy.

The background "shots" that Bill Schmitz made in Detroit for M. G. M.'s picture "Speed" were okeyed by that firm's production staff—keep up the good work, Bill.

Don Aldenderfer, soundman for Metropolitan Pictures of Detroit, is in Mount Carmel Hospital at Columbus, Ohio, having a broken leg repaired.

Edward Dyer and David Savitt enroute to west coast via St. Louis and Kansas City with stops in Arizona, Nevada, Utah and Montana making a film for Jam Handy. The trip will take about six weeks.

Charles E. Nerpel of Cincinnati dropped in just as we are going to press. Charlie is vacationing at Paw Paw Lake and advises us that Ted Scheafer of Cincinnati will get married August first—congratulations and good luck, Ted.

ADDRESS BY RABBI JACOB TARSHISH

TO THE THIRTY-THIRD CONVENTION OF THE INTERNATIONAL ALLIANCE OF THEATRICAL STAGE EMPLOYES AND MOVING PICTURE MACHINE OPERATORS OF THE UNITED STATES AND CANADA, MUNICIPAL AUDITORIUM, KANSAS CITY, MISSOURI, JUNE 8th, 1936

MR. CHAIRMAN, Mr. President, Mr. Green, Members of the International Alliance of Theatrical Stage Employes and Moving Picture Machine Operators of the United States and Canada, and Ladies and Gentlemen Who are the Friends and Visitors of This Convention:

You will all have to admit that I am on the spot at this particular moment. In the first place, before I ever came into this hall, I had occasion to meet some of your Delegates and every time I shook hands with one of them, he said to me. "I remember the speech that you delivered in Columbus, Ohio, in 1932." And when I began hearing these things my heart and my soul filled, because I realized that if I could make such an impression upon you with a speech in 1932 that you were able to remember it over these four years it would be virtually impossible for me to do as well and certainly impossible for me to do better. And then I realized, of course, that I am on the spot because I am following one of the most eloquent addresses to which I have ever listened.

I could tell by the way you applauded, by the remarkable ovation which you gave to the great leader of the American Federation of Labor, that all of the things which he said found a very responsive chord in your hearts and represented the lengthening shadows of what you intend to do in the days to come. Thus, coming upon the heels of everything that he said and of the enthusiasm which you manifested in receiving what he said, I realize again my own inadequacy and I am a little bit afraid that what I shall say this morning will perhaps fall short of your high expectations. But here I am, and according to the program and to the announcement I am supposed to deliver an address that will give you some inspiration and some light for the deliberations which are yet to follow and maybe, also act as a guide for the Labor Movement in the United States of America. Therefore, whether you shall feel that I have done as well as I did the last time, or better, it still is my sacred duty on an occasion such as this to present my opinions to you—Labor and its function in the history of American Welfare, as I see it now, four years after I spoke to you in 1932.

Then, ladies and gentlemen, we were in the midst of a deep and agonized depression. Then was the time when it was possible for me to tell you some of the reasons which were in my mind and in my heart, for the depression which fell upon the United States. Then I could make some predictions as to what I thought was going to happen in this country. I am very happy to say, as was suggested to me a little while ago before I spoke to you, by one of your Officers, that some of those predictions made in 1932 as to the tendencies and the powers and the trends of American Labor, have been in a measure fulfilled, and so I stand before you in June, 1936, to reiterate, re-emphasize, some of those things and also to suggest once again what I believe are going to be the general directions in which Labor is to move not only in the United States but all over the world.

I need not tell you how important an organization like yours is, how man does not live by bread alone. We do not live simply because we have something to eat and something to wear and a bed in which to sleep. If that is all that was necessary for Labor, then we would only be animals, then we would only be just a little bit higher than the beasts of the field, but if we are to believe what the Bible has said to us a long time ago, that we are all a little bit lower than angels, then we must recognize that in order to satisfy the impressions and desire and yearnings of the human heart, we have to have more than the mere necessities of life and your organization is one of the organizations that collectively tries to bring to the American people that which will feed their souls and recreate their powers.

The theatre, supposed to be a place of amusement; the motion picture house, supposed to be a place of entertainment; the radio, supposed to combine entertainment and amusement—these things are vitally important to the people of the United States for one reason surely, and that is that neither you nor I can go on day after day and night after night simply working at a machine, that we found something that is very much more important than that; that we need a certain relaxation and a certain relief that is given to us by entertainment and by amusement and you are the rank and file representatives of that particular Movement in the United States which gives to the people of the United States this relief and this escape from the strenuousness and the tension of our machine age.

But more than that, in every theatre, in every motion picture house, in every radio studio, there is more than entertainment and amusement, there is also inspiration. Behind every play, whether it be on the legitimate stage or whether it be on the motion picture screen or whether it be behind the microphone, there is a message to the people of the United States, as to the peoples of the world, that we are not merely animals. There are ideals from which we are assuming that we are the children of God, just as much as we are the inheritors of the instincts of the beasts of the field. Therefore, you who are members of this International Alliance represent not only entertainment and amusement, but you represent in a delightful and effective degree the inspiration that springs out of the nobler concepts of human mind and of the human heart, and that I say to you, as you undoubtedly know, is tremendously important and indispensable in any nation. For, were it not for entertainment and amusement and inspiration men and women would descend to the level of beasts. Riot and confusion and revolution would run riot over every country and it would be impossible for the nervous system or for the body or for the mind to stand what we have to go through.

Ah, it was an inspiration to listen to Mr. Green and to hear him speak upon the Labor problems of our country and I would like to follow in the footsteps of some of the things which he has already said.

I have always contended in every address that I have

made, whether it was from public platform, from the pulpit or through the radio, I have always kept in mind one thought and that is, that as Labor marches onward in the United States so does the welfare of the United States march on and no other way.

Let us see how many people are working in our country. According to the statistics which I have read, and, of course, for which I cannot vouch, there are 40,000,000 people in the United States who are working. Of these 40,000,000, half are the farmers of the United States and the so-called white collar men, and the other half are the so-called industrial workers of our country. These 40,000,000 people represent very many more than 40,000,000 people—they represent 40,000,000 families, and therefore unquestionably they represent the vast majority of our people in this country. And as they are affected adversely or beneficially, the welfare of the country is affected adversely or beneficially, and therefore whatever you shall do in the days of your deliberations and whatever the American Federation of Labor shall do in its deliberations and whatever all the Labor organizations in our country shall do in their deliberations and in their power, will affect vitally the life, the liberty and the happiness of 127,000,000 people and from that we cannot escape and it is for that reason that I have always been an ardent champion of all such causes as advance Labor in its march to better living conditions and a higher standard of living.

Abraham Lincoln was quoted a number of times. The Supreme Court of the United States was mentioned. The Constitution of the United States has been in the public eye for several years now. When we speak of Abraham Lincoln we must remember that one of the most important things that Abraham Lincoln said was in what was quoted by Mr. Green, that this is a Government of and for and by the people. Although that is important, but just as important is a statement that he once made, that "Twenty-five years ago I was a hired laborer," and that, "As President of the United States, if I were to choose between the dollar and the man, I would choose the man every time." Maybe, if he had been living in the year 1936, maybe, if he were speaking to you as I am speakin' to you now, he would modify that statement and he would say this: "If I, as President of the United States, had to choose between the machine and the man, I would choose the man and not the machine."

What is this Constitution of ours, anyway? I have read it, I have studied it very carefully and think I know what its purpose is, irrespective of its individual interpretation of the law. We are not interested so much in the letter of the law as we are in the spirit and the intention of the law, and the spirit and the intention of the Constitution of the United States is very clear for anybody who wants to read it aright. It is to promote the public welfare. No matter how else you may interpret it otherwise, you must remember that that is why the Constitution was written, that is why those men struck it off and that is why they believed in it, and that is why the original Democracy, the original Republic of the United States, accepted it. The public welfare of the citizens of the United States—that is the prime purpose of the Constitution and anything that does not add to the public welfare of the people of the United States is unconstitutional.

In our Declaration of Independence, what does it say? It says that every man has an inalienable right to three things: life, liberty, the pursuit of happiness. Keep those three things in mind and you will understand what lies at the base of the International Alliance and you will understand what lies at the foundation of the American Federation of Labor.

Life; liberty; the pursuit of happiness. What do we mean by life? Only this: that every man shall get a wage or a salary for the labor which he produces that shall enable him, his wife and his children, to have enough to eat and enough to wear and a place, a decent place, in which to sleep. If you have any other interpretation of the meaning of life, I would like to hear it from any members of this particular Delegation or any citizen of the United States. That is what life means—it means that we shall have enough to feed our bodies and protect ourselves against the cold by the garments which we wear and by the homes in which we live. Did we have that in 1932? No. Did we have it in 1933? No. Did we have it in 1934? A little bit better. Do we have it in 1936? Not yet, not yet! For, according to the statistics which are given to us by the American Federation of Labor and by the Government of the United States, there are still something like 10,000,000 people out of work in our country. And as far as those 10,000,000 people are concerned, they are not earning the means with which they can buy food and clothing and shelter, and as long as there will be 10,000,000 people in the United States who cannot find work when they want work, we are not living up to the Declaration of Independence nor to the Constitution of the United States nor to anything that is decent in any country.

That is why you have Unions. That is why you gather yourselves together today; because of what Mr. Green said, one of you individually can do very little, you can get up on the top of this beautiful Auditorium as an individual and you can shout until you are hoarse—nobody will pay very much attention to you as an individual. They will call you, maybe, a crank, or they will say that you are a radical or they will say that you are a foolish theorist. Your personal opinion, your personal desires, as an individual, means nothing, but when you gather together, seven hundred or nine hundred or a thousand strong, or four million or six million or seven million strong, and you speak, then you will be heard. Remember, then and only then.

We are no longer living in an age of individualism—do you get what I say?—we are no longer living in an age of individualism. We were once. We built this country up on the principle of so-called rugged individualism, which some people call ragged individualism. We built this country up on that principle and the reason we followed that principle was, there was a country to explore, there was a pioneer land, there were places to go to which had not yet been developed; but now there are no more places to explore, there are no more immigrants coming to this country to introduce new blood, there aren't so many new inventions to be created—we are virtually stabilized today. Our population is virtually stabilized because according to all of the statistics which we have, by 1950, 1960, the United States of America will be a stabilized country, just like the other nations of the world, and the relationship between birth and death will be just about even and then we shall have about 160,000,000 people and we shall not grow very much more.

So the day of rugged or ragged individualism has passed and a new day has come in life, and that new day we choose to call the day of co-operation, the day of property, the day of National and International Alliance, the day when men get together and work for a common purpose. Did you ever ask yourself this question: The things that you enjoy, did you make them? You got out of bed this morning. Did you make that bed? You went down and you had breakfast. Did you grow that food? You read a morning newspaper. Did you put the ideas into that

VI'S KRAX

THE writer of this here column was just wondering where the members spent their time on the Monday meeting nights when they already reported to their "HOME OFFICES" they were going to Union meeting, because it took two Mondays in a row to get a quorum. "Tear into them Gal's."

Correction—It was the Superintendent of Production and not the General Manager of S. V. E. that was expecting the stork.

B. R. Strafford is getting himself a shotgun as the rabbits out in Wheaton are chasing his dog.

"Simon Legree" Birch is ready to retire, his son is working out at Burton Holmes Films, you slave driver.

Cecil Meek, the man with the many shirts, went to Cleveland to work, worked two weeks and now he is missing with the double of Thelma Todd. Poor Cecil, he won't even have a shirt when she gets through.

Wonders will never cease. Received two letters last week from people who enjoyed reading this magazine.

I hope all of you people around the country are enjoying the grand weather we people around Chicago are. Sorry, I guess I'm wrong, it feels like another heat wave.

Floyd had a hurry up call the other day from "Shorty" that they had him in the cooler for a slight accident he had that day—"the moral of the story is don't tune in on a new radio when driving."

AN AXIOM

By J. Roy Hess

Scatter deeds of kindness,
And you'll find it true,
That a harvest of good will,
Will return to you.
At all times remember,
If you care to win,
You can never draw out,
What you don't put in.

In pursuit of pleasures,
Love, or wealth, or fame,
In all life's endeavors,
The rule is just the same.
"As ye sow, so shall ye reap,"
Whether good, or sin,
You can never draw out,
What you don't put in.

If you want the honey,
Emulate the Bee;
Store along life's pathway,
Faith and Charity.
Don't forget these two lines,
Ever they're a kin,
You can never draw out,
What you don't put in.

"Strip Coal Mining"

By HARRY BIRCH, I. A. 666

TO "do" a coal mine picture while summer breezes are blowing around the 100 degree mark, would seem inviting. The thought of being several hundred feet under ground really is something. But there are different kinds of coal mines, in case you are not in the coal business, and may not know the different methods of mining. To the writer, a coal mine was a coal mine and that meant going down in the ground and shoveling it out through an opening of some kind. Not being a miner myself, you see I was rather dumb on this topic.

Well, anyho', we were assigned to do this here coal picture. When I say we, I mean "yours truly" on the camera, Wally Hotz on the sound, both 666 'ers and also with us was that fine fellow Joe Baker on the lights who hails from Local No. 2. Patting ourselves on the back and telling each other how we would miss a lot of that southern Illinois sunshine, that never knows when to stop the thermometer from climbing, we were told that this is a "strip mine"—one of the United Electric Mines located at Duquoin, Illinois. Strip mining, my friends, is mining on the surface and no palm trees to work under.

We started work and we soon learned that we were on a job of many thrills—when I say thrills I MEAN THRILLS—for instance, one section of our job was to show the world's largest shovel, which by the way is all electric. It was necessary to "shoot" this shovel from underneath, from on top, from the control room and finally "shots" made from the shovel itself while in action.

As stated above, this shovel is known as the world's largest and I only repeat this because it is almost impossible to find words that will describe this huge monster. The housing of this shovel is comparable with an average two-story dwelling. If the shovel were operating in a city, the point of the boom would reach the top of an eleven-story building, and the bucket could readily dump on the top of a seven-story structure. Some of the facts and dimensions are: the cab or housing is 30x60 ft.; the boom 120 ft.; the stick 83 ft.; and the weight is 1,750 tons. Operating cycle from beginning of bite, dumping and back, is 50 seconds. With 70 ft. of overburden and 6 ft. of coal, the shovel uncovers 1½ tons of coal at a bite.

From underneath you look at the gearing and the tractor type apparatus—built in such sizes that it makes you stop and think. However, the thrill came when we started with camera equipment to the top, to look straight down on this "jaw" while it was biting into tons of rock. If you have ever felt the floor move out from you, you will understand what I mean, because as this big fellow started to do its stuff the top of said boom would do an act similar to a young bronc being broken in for the first time. Of course you don't mind that if you are a couple of feet from the ground, but the top of this boom is exactly 130 ft. from the ground with nothing but fresh air in between you and said ground. This first jump seemed like the finish and that was thrill No. 1.—

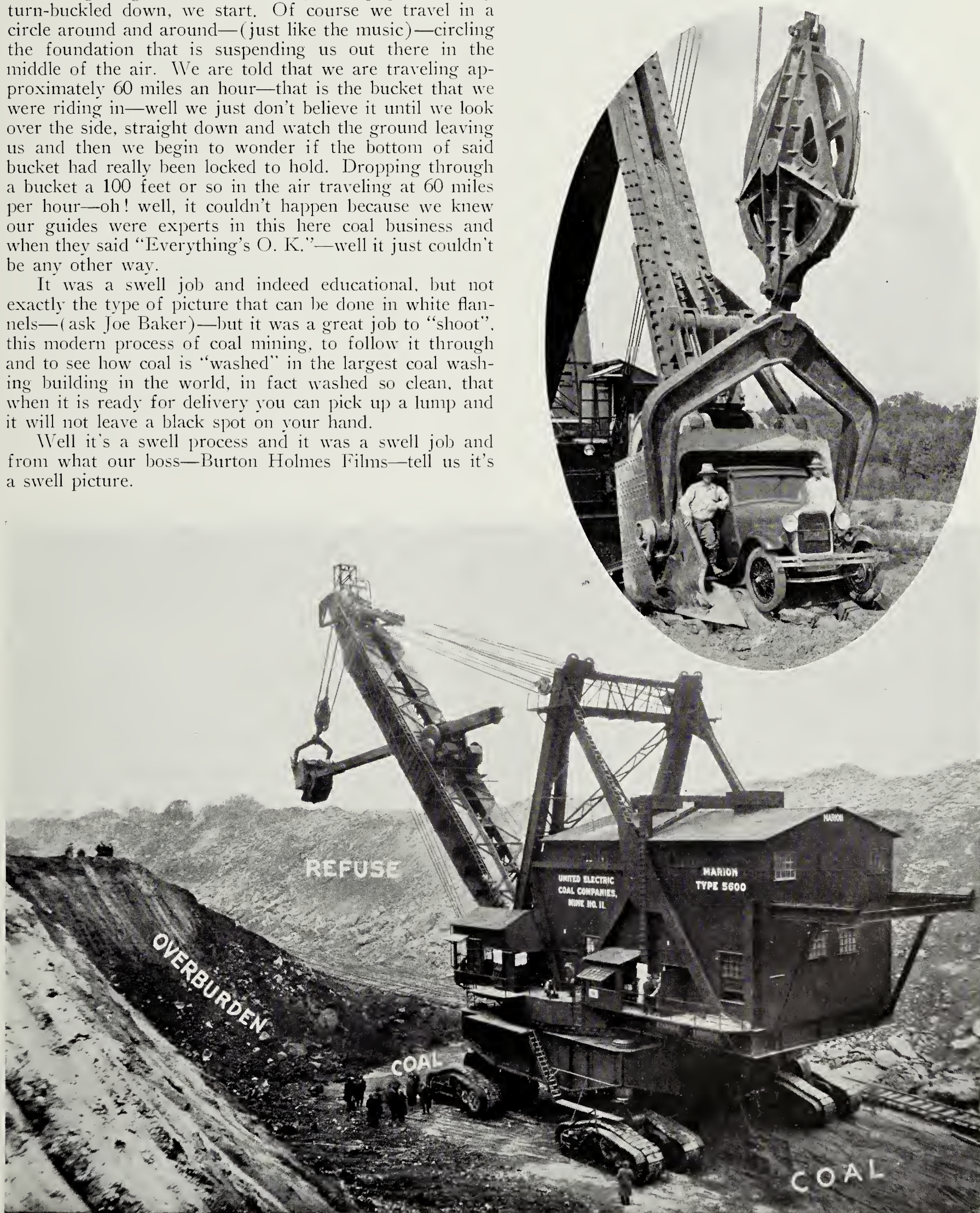
We felt that we had had our thrills for the day—so with the usual routine of a cameraman's "setting-up" exercises we mounted our equipment IN the bucket to "shoot" general views while the shovel was in motion. I might mention here that at the controls of the machine was a swell little fellow known as Shorty—and if Shorty ever reads this, I want him to know that we all think he is one of the finest gentlemen that any of us had ever met—but, some day Shorty, the writer would like to have

the pleasure of being at the controls and have you in the "big-bucket"—never mind Shorty, you gave us all something we won't forget for a long, long time.

Well getting back to the bucket, our equipment safely turn-buckled down, we start. Of course we travel in a circle around and around—(just like the music)—circling the foundation that is suspending us out there in the middle of the air. We are told that we are traveling approximately 60 miles an hour—that is the bucket that we were riding in—well we just don't believe it until we look over the side, straight down and watch the ground leaving us and then we begin to wonder if the bottom of said bucket had really been locked to hold. Dropping through a bucket a 100 feet or so in the air traveling at 60 miles per hour—oh! well, it couldn't happen because we knew our guides were experts in this here coal business and when they said "Everything's O. K."—well it just couldn't be any other way.

It was a swell job and indeed educational, but not exactly the type of picture that can be done in white flannels—(ask Joe Baker)—but it was a great job to "shoot", this modern process of coal mining, to follow it through and to see how coal is "washed" in the largest coal washing building in the world, in fact washed so clean, that when it is ready for delivery you can pick up a lump and it will not leave a black spot on your hand.

Well it's a swell process and it was a swell job and from what our boss—Burton Holmes Films—tell us it's a swell picture.



Courtesy United Electric Coal Company

Permission Burton Holmes Films, Inc.

United Electric Coal Company's big Marion Coal Shovel at the Fidelity Mine at Duquoin, Illinois. This is the world's largest dry-land shovel and the closeup of the bucket in the oval insert gives graphic idea of its size.

Snoopin' the Lens Snoopers!

By RED FELBINGER, I. A. 666

WELL I see where we are all in the middle of the "Notification" season. . . . I just got back from Topeka, where all the newsreel knights of 666 put the Landon notification on celluloid . . . and it sure was one hot grind, with the sun hitting it off around 105 degrees during the afternoon parade . . . and still hotter under Bob Duggan's big ten Kw's at night but everything went off ship-shape despite the heat and we got some swell negative on the night stuff with Duggan's lighting and I say this after batting around this summer on a couple of political shows . . . gimme Bob Duggan and his old Inkies any day . . . for we kin always sweat a swell lighting job out of Bob and his cohort of many years, O'Malley. Duggan says the toughest part of the whole Topeka job was sleeping on the park benches in Capitol Park, the hotels were full up so Duggan turned in under a blanket of stars.

While at Topeka I hears about another "notification ceremony" which has become sort of a legend in the political camp out there . . . we'll have to tell this "Notification" in play form: The Scene: the governor's private summer office in his lodge at Estes Park.

The cast: the Governor, who is sitting in one of the visitor's chairs. He wears a highly amusing look.

Jack Barnett, proud father of some few minutes standing, sits back in the governor's swivel chair, with his feet parked on the governor's mahogany desk smoking one of the governor's best economical "heaters."

As the scene opens Jack is banging the phone receiver hook up impatiently, screaming for service from long distance. Jack just manages to grab another puff from the ceegar and bust another button when the connection is put through.

Jack (into phone): "Hello! Hello! is this the hospital? . . . okay! I'm Mr. Barnett, the - - ahh - - oohhh - - ohh - - aah - - (aside to Governor) - - say Gov. all of a sudden I can't talk.

What'll I say? Come on Gov. you gotta help me out."

Governor: "Well ask how your wife is."

Jack: "How's my wife? Come on Gov. now what do I say?"

Governor: "Ask how the baby is."

Jack: "How's my baby? Now what Gov.?"

Governor: "Ask how much the baby weighs."

Jack: "How much does the baby weigh?" Okay, okay, take good care of it. Thanks . . . so long . . . so long. . . ."

Governor: "Wait a minute . . . wait a minute! . . . you better find out whether it's a boy or a girl."

Jack: "Oh yeah, that's right. I oughta know that! Hey, hello, hello, what was it a boy or a girl? . . . "Hurrah! . . . swell! . . . thanks . . ."

Jack (jumps up, slaps governor on back and yells): "Hey, congratulate me, Gov. I'm the proud pappy of a girl . . . whoopee . . . !" and so Jacquelin June Barnett made her debut . . . and the governor presented Jack with a handsomely engraved cup for the new offspring.

Another notification this here department has received is that our ole friend Charlie Beeland has finally decided to get hitched and settle down like the rest of us. . . . The Paramount News Chicago snoopers staff all got hand graved invitations to see Charlie take the jump the early part of August . . . the best of luck, Charlie, even if you is the last one to finally give up batchelorhood . . .

Mike Rotunna, genial maestro of Metropolitan News pictures at Municipal airport, in Chicago, sends us a notification he has moved to new headquarters in his own building out at the airport, and would we and the gang come out and help drink some beer as a grand opener . . . well the gang around my joint was busy but we'll be out to see the new joint, the next time we get out to the airport and you kin still buy us a beer on it, too . . . in the meantime best wishes and hoping you outgrow this joint in the future also.

Bull Philips decided that Estes Park was far enough away from the whole gang to enjoy a vacation in privacy . . . only to find Jack Barnett and a whole raft of lens snoopers crashing in on him after a few days out there . . . and Sam Savitt hied himself off to Lake Geneva with a lot of special fishing tackle only to find the only thing that was biting up there wuz the mosquitoes . . . and yoors truly hied off to the coast to land in a hospital for his vacation . . . so it looks like what this here newsreel game needs is another stratosphere flight up in the Black Hills for one of them quiet (???) rests a guy looks for on his vacation. See you next month. . . .

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TEC-TALKS

By H. C. (DOC.) GANTZ
Local 666

LAST month our discussion of motors and batteries stirred up a number of letters from readers, asking for further information. So here goes!

A great many cameramen prefer to use 110 volt motors, supplying the juice from radio "B" batteries if their work is in the field away from a source of commercial current. It is usual to use six heavy duty batteries wired in "series-parallel" in order to give sufficient voltage with the relatively very heavy current drain imposed by even the smallest motors.

One prominent Chicago cinematographer recently ran some experiments with "B" batteries. He found that three heavy duty batteries in series, giving 135 volts without load, were unable to turn the camera. The voltage drop under load was down to around 20 volts! When three more batteries were added in the series-parallel arrangement everything was lovely, and the voltage under load dropped to about 90 volts.

If you use "B" batteries, be sure that all connections are soldered, and use fairly heavy connecting cable. Be sure all motor contacts (plugs, switches, etc.) are in first-class shape, because a poor connection is a fruitful source of voltage drop—and you must avoid that if you want satisfactory motor performance.

Perhaps the only advantage to the above method is that, if you have a "universal" motor (A. C. or D. C.) you can use it with batteries in the field, and plug into any 115 volt source when it is available.

The writer, however, is firmly sold on the twelve volts, D. C. motor. It is of about the same total weight as the 110 volt motor, and a darned sight more handy. Twelve volts of the heavy lead-acid battery weighs less than six "B" batteries, costs less to use, is more certain to be available—every town or village these days has a garage or battery station—and the universal acceptance of the "all-electric" radio is bound to make the "B" battery more rare, especially in the larger sizes.

If you use a 12 volt D. C. motor, with 8 volt A. C. 60 cycle interlock, you can use the same motor "wild" or you can interlock when a source of 60 cycle current is available. I know one studio which has a truck carrying a small 60 cycle motor-generator set for supplying the interlock in the field. Main D. C. power for the motor is supplied by sufficient storage batteries to overcome the voltage drop in a long line, although the battery can be used right at the motor if desired.

The above type of motor thus becomes a reliable and simple "wild" or sound motor at will. When running "wild" its speed is variable over a good range. In the field it can be interlocked with a similar motor driving a recorder with most excellent results. The writer is prepared to engineer such systems and welcomes inquiry.

Are you getting the most out of your pola-screens? Do you know that two of these screens used in "tandem" permit some really gorgeous results? But to get these results, the pola-screens must be used in a holder which is properly calibrated for one or both screens, insofar as their relative angles of rotation are concerned.

Equal degrees of rotation of the pola-screen do not give equal light-polarizing effects. Therefore you must have a means of engraving, or "dividing" the correct angles on the holder. Only a properly equipped machine shop can do this, as the angles in some cases are set to within half a degree of arc. We are equipped to supply double holders if the demand warrants.

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Some cinematographers prefer a pola-screen holder which fastens to the rear of the Goerz matte box assembly. Others like the individual, separate holder which slides on the "goose-neck." Both kinds are available.

Have you ever been shooting "single-system" sound and had some one trip over the glow lamp cable with disastrous results? Simple, pre-focussed type tube and optical slit holders are now available. They are rugged and reliable, and can "take it." Their cost is comparatively low, and the peace of mind they bring to the user, plus their positive protective value to tubes, saves their cost in a short time.

ADDRESS BY RABBI JACOB TARSHISH

(Continued from Page Five)

newspaper and did you print it and did you publish it? You got into a taxicab or an automobile or a street car. Did you manufacture those things? Did you build this building in which you are meeting now? When you go to your hotel rooms, or when you go to your homes, the electricity, the gas, the radio, whatever you enjoy—did you create them? Why, of course not. The question answers itself, you did not create them. The only reason why you have these blessings from the time that you arise in the morning until the time that you go to bed is because millions of people have worked with you.

It is no longer an individualistic age; it is a social age; it is an age where men and women co-operate with one another for a common blessing, and in achieving your bread and butter and clothes and a home in which to live you have to remember that the only way in which you can have these things in the United States, or anywhere else, is by uniting for a common cause, as you have united, and by making your Organization stronger in the future than it has been in the past and by remembering that when you speak collectively you will be listened to, and when you speak individually nobody will pay attention to you.

Society gives you much, therefore you have to give Society back very much in return and the only way in which we can lift the standard of living is by this thing that we call an Alliance, by this thing that we call a Union. What did the Unions do? What did the Unions do, over those years? Remember that once upon a time men worked eighty-four hours a week. Remember that once upon a time men, women and children lived under conditions that were worse than the animals in the fields. Remember that once upon a time Labor was just a commodity to be bought and sold to the lowest bidder, and remember as the Union Movement increased in power across the years we gradually came to expect an eight-hour day as against a fourteen-hour day. Conditions of employment improved, the standard of living improved and those things came about not because men were magnanimous and men were charitable; those things came about because men gathered together, insisted that they should come about, and that's all. You understand what I mean. It was not so long ago that Mr. Gary, or Judge Gary, of the United States Steel Company said that it was impossible for the steel industry to run except on a twelve-hour shift. You remember all the excitement that was created at that particular time. He was supposed to be an authority on the question. Well, they changed that twelve-hour shift to an eight-hour shift, and as far as I know, the United States Steel Company is still in existence and is increasing its business now, with prosperity apparently coming from around the corner.

So you see, a man might say that you have to work human beings like animals, but simply because he says it does not make it so, because human beings are not animals. Human beings are still human beings. It was at the time of that famous controversy that I happened to be sitting together with a millionaire, a multi-millionaire; I associate with some of them, too. We were discussing this question of the twelve hours and I said, "What do you think about it, do you think that the steel industry can go to an eight-hour basis?" and he said, "I don't know about that, but let me tell you this, even if the steel industry could go to an eight-hour basis those people who work in the steel foundries, they wouldn't know what to do with the extra four hours." They wouldn't know what to do with the extra four hours! And yet, his grandfather came over to this country as an immigrant and this country blessed his

grandfather and blessed his father and blessed him. I wonder if he thought that his grandfather wouldn't know what to do with the extra four hours.

Life. Liberty. I want to say something about Liberty, gentlemen. Liberty is vitally important in the United States today. I think it is marvelous that the President of the American Federation of Labor could get up here and express his opinion of the Supreme Court of the United States and its interpretation of the law. I want to say to you that it is a wonderful thing to have Liberty in a country. If you think that it isn't a wonderful thing to have Liberty in the country, then you ought to live in Italy, then you ought to live in Germany, then you should have lived in Russia in the early days of the dictatorial Revolution, then you should live in other of the nations where there is a Dictator.

I want you to beware of one thing. I do not know what is going to happen in the next election in November. I do not know whether Roosevelt will be elected or somebody else, but irrespective of who is going to be elected, I want to issue a warning to the laboring people of the United States that there is one thing they must not stomach and they must not stand for—and that is Fascism. Why do I say that? Because under Fascism every Union is destroyed. There is no collective voice that can speak. Meetings like this would be absolutely impossible. You would be told, not what you want for your labor, but you would be told what you are going to get for your labor, and if they decided under Fascism that you were only to get two dollars a day, or a dollar a day, you would have to take it. You could not strike, gentlemen, remember that. You could not even voice your opinions, because if you did, why, your answer would be in the cold gray dawn of the morning after—a shot, and you would be out of the way and your whole problem of living would be solved because you would be dead.

Remember, that is what the Revolutionary forefathers fought for; that is what we have been working for in the United States; that is what we have been treasuring; that is what the American Flag stands for—liberty of speech, liberty of assembly, liberty of worship. I take it that there are Jews here, that there are Protestants here, that there are Catholics here and maybe there might be a few atheists, I don't know. But I want to say to you that it is a glorious thing to be able to believe about God as you please, and you cannot do that under Fascism, and you cannot do that under Communism, because these liberties are taken away from you. Over a thousand, over 1,300, over 1,500, over 1,600 years there was no such thing as the liberty of worship, political liberty, economic liberty. We came into a new age and that new age was represented by that American Flag and by our country. That new age said that every man is entitled to those rights of liberty, that you have a right to take the belief that you want to rule you, that you have a right to say something about the laws that shall govern you, that you have a right to go into whatever Church or Synagogue that you want, and that you have a right to life and liberty and to the pursuit of happiness.

That is what America stands for and those are not the things that Fascism stands for because Fascism stands for everything opposed to it. So, that if you are truly American and if you really believe in the principles upon which our country was founded and upon which our country stands, you will remember that Fascism is the enemy of Labor under any and all conditions and that when you give up the liberty which has been ours during these one hundred fifty-some years, you also give up the power which naturally and normally belongs to Labor.

The Pursuit of Happiness. We all want to be happy, but how are we going to achieve happiness in the United States? Are we going to achieve it by the rugged individualism of the past; are we going to achieve it by the recurrent depressions which come to the United States in a large form every fifteen and twenty years and in a small form every three and four years; are we going to achieve it when our Government institutions are not sound; when our homes are taken away from us; when our farms are taken away from us; when our jobs are taken away from us? No. There can be no happiness in the United States or anywhere else without economic security. Remember that. There can be no happiness without economic security.

Now, what do I mean by economic security; what is the thing for which the Labor Movement should work in the United States, what are the things? Well, I am of the conviction, just as I was in 1932, that you should, you have to, keep advancing the cause, the strength and the power of Unionism in this country to the best of your ability and as you do that you have to battle for the social rights of humanity.

And how can those social rights be manifested? I will tell you. Not by revolution—we do not want any revolutions in the United States. Some revolutions are good, some revolutions are bad, but good or bad, the people who live in a time of revolution suffer and it is only the generations that come after revolution that have any benefit of the revolution, for you see what happened in Russia and you see what happened in Italy and you see what happened in Germany and you will see what happens in other countries under a revolution.

We have an American way of conducting a revolution and that American way is a peaceful way of conducting an economic revolution and it is manifested in the legislation which is enacted in every city, in every state and in Washington, District of Columbia. It is a crying shame that only twenty-four States have ratified the Child Labor Amendment; it is a crying shame to the American Flag and the American people and the American Constitution that it shall be necessary for the President of the American Federation of Labor to rise up and to say to you that it is going to be hard to get twelve more states to ratify that amendment. What have we against the children of our Country? Do we bring them into the world so that they shall go to work at fourteen or at twelve, when their parents are willing to lie about it, so that there shall be a million or two million children in our country working at jobs that belong to their fathers just because industry can get children cheaper than they can get adults? Why do we hesitate; why do we hesitate? Only God knows. The Labor Movement in this country must be identified with the elimination of Child Labor so that another million, another two million grown up people who want to work shall have an opportunity to work and take the place of those children whose minds, whose bodies, whose nervous systems, whose souls, will be crippled for all time by that kind of labor in a country as prosperous as ours. How could there be Child Labor? You women, some of you may be mothers, you don't bring your children into the world to send them out to work at the earliest possible opportunity in factories, in cotton fields, in the mines of this land. Children are brought into the world in order that they may find happiness and make their contribution to the civilization of their country and the only way in which they can do that is if they get the necessities of life, the comforts of life and the right kind of education and the only way in which they can get that is if they do not have to go to work until they are grown up men and women.

The elimination of Child Labor, Old Age Pensions—we will have to come to that. The machines that are being continually created in our country by the inventive genius of man, always throw out a certain number of people who are originally employed. We have to come to a time when men after sixty, maybe after sixty-five, shall be able decently to look to the setting sun and await peacefully the coming of their last days. We have had poorhouses in this country; you know what poorhouses are. We have had charity in this country for the aged, and you know what charity is. The insurance companies tell us that ninety-five people out of a hundred after the age of sixty are dependent upon somebody else for their living, either upon the poorhouses or upon charity or upon the charity of their children and of their relatives. Is there any man, is there any woman, within the hearing of my voice who can look forward with pleasure to a time when they will have to beg after they have given thirty, forty, fifty years of their service to this country? It is a crime that when men get old and women get old, that they have to subsist on charity. Therefore, the United States will never be civilized in its true sense, nor will the Labor Movement in the United States be true to its ideals unless there shall be in every State of the Union some kind of a decent Old Age Pension in which there is no charity.

What is an Old Age Pension? It is only paying back what you earned once upon a time that Society did not give you, and that's all. The elimination of Child Labor, the establishing of Old Age Pensions, and as the machinery of the United States increases it will become increasingly necessary in our country, if I understand the economic trends of our time, it will become increasingly necessary for the hours of labor to be shortened and the wages to be raised. There is no other way out of the economic debacle, out of the difficulty in which we find ourselves at the present time. We have to do it because machines are replacing men all the time and they will continue to do so as long as the mind of man functions and you cannot stop man from inventing things as long as the mind does function, and the only way that you will be able to take up the slack, the only way that you will be able to equitably distribute the wealth of this country, is by higher wages and less hours of labor and that is one of the functions of every Alliance, of every Labor Union and you will have to have Unemployment Insurance, just as they have it in Europe, so that we do not suffer the humiliation that we suffered between 1930 down to the present time.

Unemployment Insurance; we will have to have some kind of a Health Insurance. In other words, what I am trying to say to you in the time which I have allotted to myself is this: That if the Declaration of Independence is right, that every man has an inalienable right to life, liberty and the pursuit of happiness, the only way in which we can make the people of the United States happy is if we protect them against things over which they have no control. Once upon a time we used to say if a man was without a job he was lazy; once upon a time we used to say that if a man did not have any money to support himself after he was sixty, he was lazy and shiftless. Once upon a time we used to say those things, but we cannot say them any more—there have been too many people in the United States that are suddenly thrown out of jobs for no reason for which they are responsible. Remember that. We are not living in that kind of a time any more, we are living in a time when the economic forces are stronger than any individual and we have to try to control those economic forces by a proper kind of an organization and we recognize that a great many people in the United

(Turn to Page Fifteen)

...Business Filming...

By MERVIN W. LA RUE

ONE of the most interesting developments in the practical application of the motion picture has been in the medical field. Back in 1916, the writer made his first surgical film. That was a never-to-be-forgotten experience.

At that time the only film available was the orthochromatic film and the only practical source of artificial lighting was the old carbon arcs. Anesthetics were highly inflammable, if not downright explosive. We had no desire to make our exit from the operating room by way of the skylight as such a procedure would, no doubt, be highly annoying to the patient as well as to ourselves. Carbon arcs were therefore declared definitely out. In contrast with present day methods, this early set up should prove interesting.

We visited all the hospitals in the city and finally located an operating room with an excellent skylight and a southern exposure. The patient was moved to this hospital and we selected a time for the operation when the sun would be directly on the patient. The camera tripod was mounted on a step ladder directly over the feet of the patient and a series of reflectors directed all possible sunlight upon the operating field.

With everything in readiness, the writer, in cap and gown, mounted the ladder and the surgeons proceeded with the operation. The operation developed into a lengthy one and the sunlight soon heated up the operating room to the point where everyone was decidedly uncomfortable. To make matters worse, the anesthetic floated upward into the writer's face and it soon developed into an endurance contest to determine who would be finished first—the surgeons or the cameraman. It was practically a dead heat, for as the surgeons said they were thru, the writer became absolutely and definitely ill, and had to be removed from there. Later the surgeons stated that they did not wish to repeat the experience and the writer silently endorsed these opinions.

Contrast that experience with a comparable one of today . . .

Panchromatic film has replaced the orthochromatic film making it possible to secure a wealth of detail in the deepest incisions. The true reproduction of reds make it possible for the surgeon or student viewing the film to differentiate between blood and tissue. Mazda lighting has replaced the arcs of old, so that we can get much better results without heating up the operating room and without danger regardless of the anesthetic used. Special equipment for lighting surgical fields has been developed and motor driven cameras equipped with one thousand foot magazines and long focus lenses make it possible for the cameraman to operate efficiently beyond the sterile field.

For many years, teachers in the medical schools have realized the value of the motion picture in teaching surgical technique and other subjects. Many excellent films have been made and are being used extensively, especially in the obstetrical field, but the demand far exceeds the supply. Finances have prevented a far more extensive use of this

medium in recent years and is responsible for the rather wide spread use of 16mm. cameras by physicians and surgeons. Many subjects thus made are excellent in conception but poorly photographed and edited. A few of the subjects which the writer has seen have been excellent photographically but these all demonstrated poor or unaccepted technique or the subject was of only ordinary or local interest.

The best surgeons and teachers have not time to learn the details of motion picture technique. Those who have so gladly given of their time and who have tried to produce films of real teaching merit have had a lot of hard work, considerable expense, little encouragement and no financial return. It is not surprising that they soon became discouraged.

Teaching films are in demand in practically every field of medicine and surgery. This field is so vast and the demand so great it seems too bad that many medical groups with limited means have duplicated each others efforts. If some plan of coordinating such activities could be devised with a subsequent exchange of prints, the amount of money available for this purpose could be made to accomplish much more. If we can then secure the necessary finances to carry on this work, we will be able to develop a greater volume of business and each of the organizations we represent should be able to get their share. This does not sound impossible when we consider the number of medical institutions and clinics that are heavily endowed and when we realize that there are a great number of pharmaceutical and equipment manufacturers who are dependent upon the good will of the medical profession for their very existence.

Before we can progress very far in this direction, however, we must become thoroughly familiar with the requirements we will have to meet. Let us briefly review them . . .

To be of real teaching value and accepted universally as such, films must be planned and produced to closely supplement the text books in general use. Care must be exercised in their planning before production, and this work must be accomplished with the close cooperation of those recognized in their respective fields as competent to teach the subjects in question.

To accomplish this we must secure the sponsorship of endowed institutions or manufacturers who can profit thereby. We must secure the cooperation and assistance of outstanding men in their respective fields of medicine. We must arrange matters so that they can carry on this work without too great effort on their part. We must secure the cooperation of outstanding hospitals where suitable material for demonstration can be secured. We must develop our own facilities as to medical photographic technique required to produce such films as will be acceptable. This is of such importance as to warrant additional discussion in a later issue.

An institution or commercial organization sponsoring such a movement, or any part of such a program cannot help but net extremely satisfactory returns in proportion to the investment made.

THE ELEMENTS OF TELEVISION

By C. P. MEEK
Local 666, I. A. T. S. E.

Illustrations by Carlson Studios, Chicago

SECTION VIII—Continued

An interesting group is the "Anode Voltage—Current in Microamperes" set shown in Figure 6. This family is not composed of straight lines, and an increase in anode voltage of 20 volts at one part does not indicate the same addition of current as for a similar increase of voltage elsewhere.

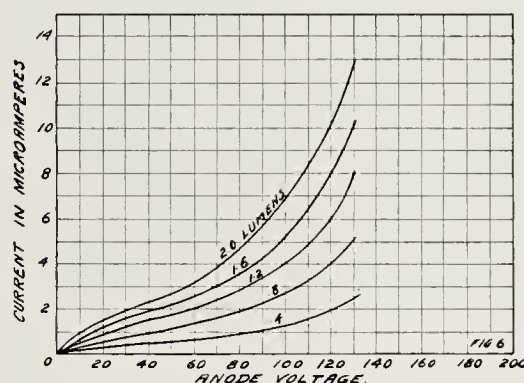


FIG. 6

These curves show that "if the voltage on the anode of a photo-electric cell is increased (all other conditions remaining the same) the amount of current flowing in the cell will also increase." They also indicate the amounts of increase in current if the anode voltage is augmented by any definite amount.

* * *

The curve of Figure 7 shows that "as a lamp is moved away from a cell, the amount of light decreases as the reciprocals of the squares of the distances between lamp and cell—not directly as the distance."

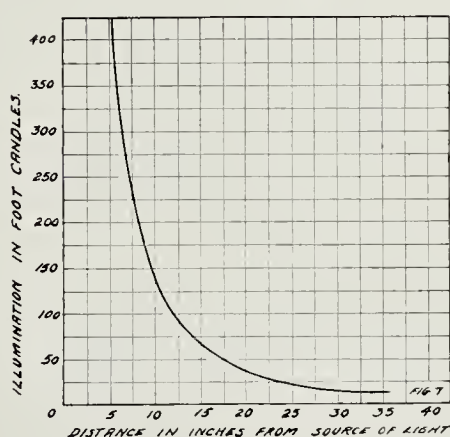


FIG. 7

The above statement may be explained by a simple experiment, the elements of which are a source of illumination, an aperture, and a blackboard, the area of which is marked in square inches.

The matter to be determined is as follows:

If the lamp, normally located five inches from the blackboard, is placed at a distance of ten inches, why is not the light per unit area half as strong, as the ratio of distances would indicate?

Place the aperture, 1"x1", in front of the source of light. Put the blackboard 5" away from the aperture, and adjust the position of the light until the illumination

covers an area of 25 square inches. This area will then be five times as high and wide as the original opening.

If the amount of light is the same at the aperture and blackboard, it is evident that any of the 1" squares of the chart receives only 1/25th of the original illumination.

Move the blackboard 10" from the aperture. The light-covered area is now 10"x10" or 100 square inches. It is again obvious that any of the unit areas of the 100 square inch surface will receive only 1/100th of the original amount of illumination.

The intensity per unit area has fallen from 1/25th of the total at 5 inches to 1/100th at 10 inches. The distances are 5 and 10 inches. Five is one-half of 10, but it is obvious that 1/100 is not one-half of 1/25. The quantity of light per unit area has decreased more rapidly than the distance would indicate. *It has decreased as the reciprocal of the square of the distance.*

If an increase is required, the distance can be squared to indicate the ratio of increase. But it is evident that illumination from any light *decreases* as the distance from it increases, and this is therefore indicated by the use of the reciprocal (or inverse) of the square of the distance between the lamp and, for television purposes, the photo-electric cell.

The graph of Figure 7 is reversed in direction to that of the others just seen. There is a reason for this.

In all previous curves the figures have started from zero at the lower right hand corner of the graph and built to maximum values in both vertical and horizontal directions. Under such conditions if the curve leads to the right, the values of the graph starting in the lower left-hand corner and rising to the right will increase.

In this particular graph the values are written in the normal manner, but the curve does not begin at zero. It starts at 6 on the bottom index, and with increasing values on that scale, decreasing values are shown on the chart and indicate

- 400 foot candles of illumination at 6 inches.
- 225 foot candles of illumination at 8 inches.
- 144 foot candles of illumination at 10 inches.
- 36 foot candles of illumination at 20 inches.
- 16 foot candles of illumination at 30 inches.

Reading from left to right on the bottom scale, the values indicated by the curve as read on the vertical scale, are decreasing.

A curve in any shape leading from the top left to the bottom right and with the scales at the bottom and side building up from zero to a maximum always indicates that the greater the value on the bottom scale, the smaller will be the value on the side.

* * *

The reader will observe that some time and much effort has been expended in an explanation of graphs. They are met with frequently in the study of television, and it is impossible to carry on this discourse without a proper understanding of them.

Cinemabiography

BROTHER Mervin La Rue born Bound Brook, New Jersey and educated Penning School and Rutgers College. During summer vacations he ran a portrait studio but did not get wealthy. Summer and winter following graduation he worked at Pathe Laboratory at Bound Brook and was sent to Pathe's Jersey City Studio as cameraman—worked with Pearl White—got fired—went to Underwood and Underwood as commercial photographer and was transferred to news work later which he did not like.



MERVIN LA RUE

In 1914, La Rue went to Kalem Studios at Cliffside, New Jersey, worked with cameraman Arthur Todd and director Bob Vignola on "Black Crook" the first movie extravaganza. Kalem was dissolved by U. S. courts as part of General Film and he went back with Pathe. Transferred to Toronto, Canada, 1914, and covered war activities in Canada and London, England, instructed in Aerial photography, Canadian Royal Air Force and after war went back to Canada with Pathescope.

Covered the first official visit of H. R. H. Prince of Wales to Canada, being with the whole tour with Brother Tracy Mathewson.

Stayed in Canada until 1926 producing travel, scenic, shorts and industrials. Came to Bell and Howell 1926, to organize Industrial Division, was there as salesman, cameraman, director and technician until 1931. Went to Burton Holmes Films, Inc., where he is at present.

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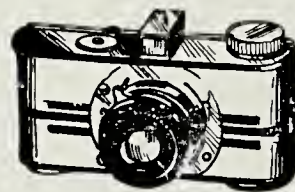
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Over 26 Years of Camera Service

ADDRESS BY RABBI JACOB TARSHISH

(Continued from page Eleven)

States have lost their jobs and lost their homes and lost their farms simply because a great flood tide came upon them.

Oh, we sympathize enough when the Mississippi overflows its banks and the dams are broken. Then the Federal Government of the United States gets busy and the Red Cross comes and relief is given, but do we stop with relief? No. The Federal Government gets busy and it says, now how can we stop that flood from happening again. The same way with a depression, the same way with the economic status of the great masses of the American people. It is not enough to spend four, five, eight or ten billions dollars on relief. The leaders of the United States, whether they be the leaders of Government or the leaders of Labor, have to get together to devise ways and means by which depressions shall no longer come upon our country and that is within the realm of possibility and that realm of possibility is made so possible by organizations like yourselves.

Well, I think I have spoken such a long time, you have been very kind to listen to me. I only want to remind you that everything that I have said is only in accord with the high and the great principles of your organization and is also in accord with the high and great principles of religion. Jesus a long time ago said, the prophets said it before Jesus came upon the scene, that there is only one thing to remember about religion, there is only one thing to remember about life, there is only one thing to remember about the relationship of human beings, and that is, "Thou shalt love the Lord, thy God, with all thy heart, with all thy soul, with all thy might, and thy neighbor as thyself." This is the Fatherhood of God and the Brotherhood of Man and this is what we have to work for and this has been the purpose of everything I have said to you this afternoon. Although I have not said very much about the Fatherhood of God, I have spoken about the Brotherhood of Man.

A Union is only an attempt to gather people together in the same line of work so as to bring a little bit closer to Labor that Brotherhood of Man, so that every one of you can understand that unless you work as a body, as you have been working over these years, you will get nowhere. That united you stand and divided you fall. That united you have mighty power and you can get many blessings. Divided, everybody will trample upon you and you will be in the dust.

So, remember that, and may God put his blessings upon your deliberations and may you grow from strength to strength and may you make the United States of America in the future greater, more glorious, than it was in the past. Only because you have set your faces to the sun, as it has been said, only because you have made up your minds that you will work and you will fight and you will labor that men shall find security and peace and happiness that, as the Declaration of Independence says, all of us are entitled to the inalienable rights of life and liberty and the pursuit of happiness.

Thank you.

Editor's Note:

The series of articles which appeared in the July issue of Cinema Digest entitled, "Applying the Yard Stick in the Making of Motion Pictures," will be continued in the fall and winter months beginning with the September issue. Articles are now being written in continuation of this interesting subject.

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Conrad A. Luperti Fund

AT the May meeting of Local 666 the members were notified that Former President Conrad A. Luperti was seriously ill and that should he recover he would be unable to work for several years. A motion was made and concurred in that Brother Luperti be given an Honorable Withdrawal Card and that the members be asked to subscribe towards a purse of money to be presented to Mrs. Luperti.

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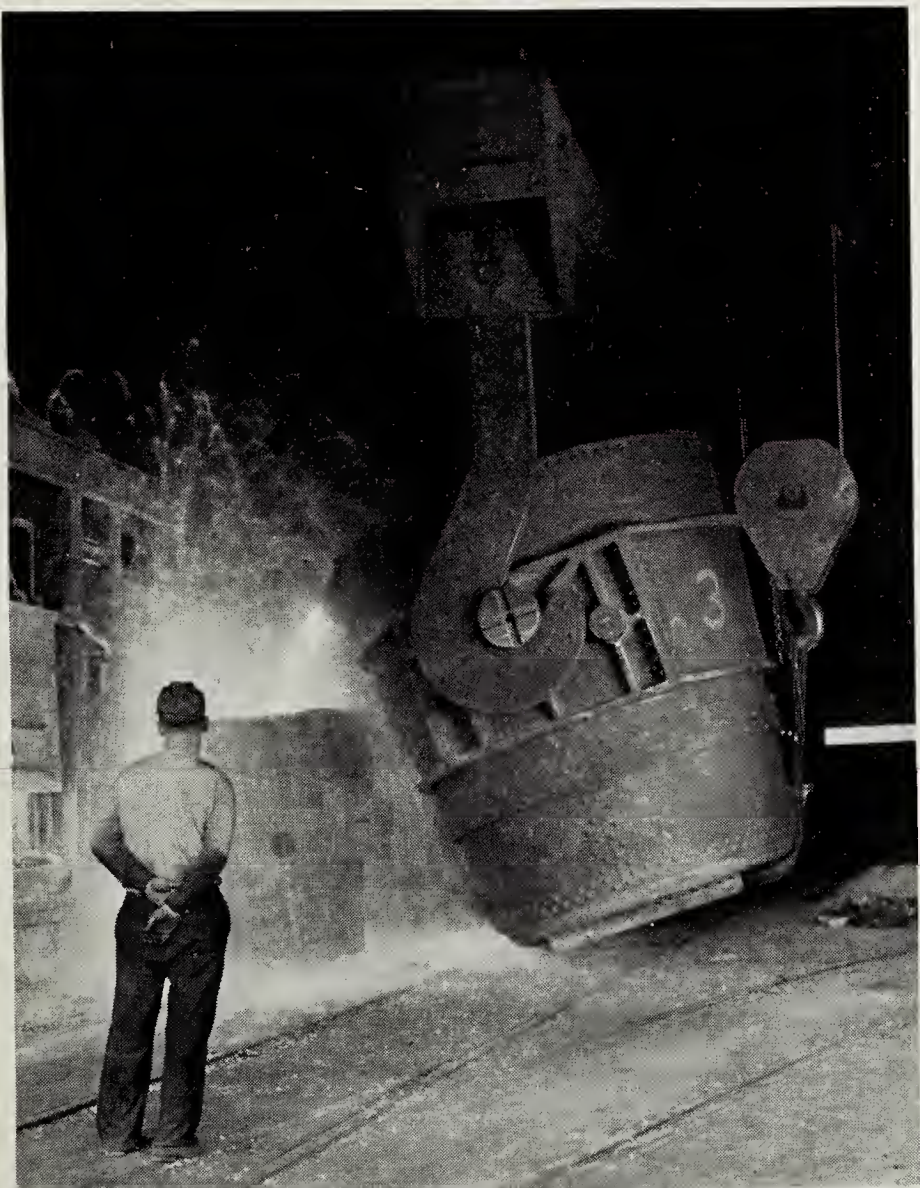
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POURING STEEL.—By Louis Kramer. I. A. 666

SEPTEMBER, 1936

VOL. 2

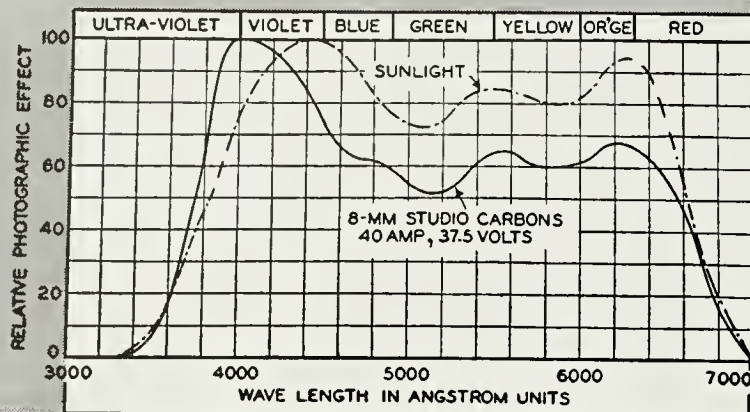
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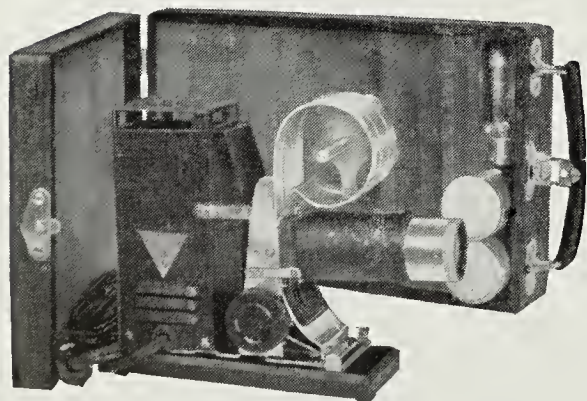
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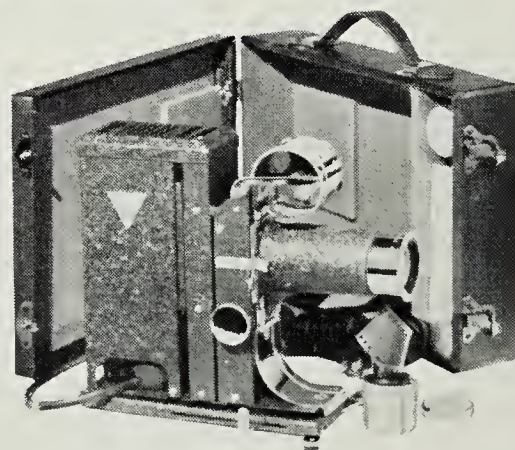
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LOCAL 666

By W. H. S.

A NEW agreement effective September first has been signed between this Local and Producers of Industrial Motion Pictures, governing the salaries and working conditions of Industrial Cameramen.

The wage scale has been set at One Hundred Dollars per week for regularly employed cameramen and sound cameramen, assistant cameramen Fifty Dollars per week. Extra men not regularly employed Thirty-Five Dollars per day for Cameramen and sound cameramen. Assistant cameramen not regularly employed Twelve Dollars and Fifty Cents per day or Sixty Dollars per week.

Cameramen photographing Theatrical Trailers and Titles are to receive a minimum of Twenty-Five Dollars per day or One Hundred Dollars per week or a minimum of Seventy Dollars per week as permanent employees.

AT EMPLOYEE'S PERMANENT BASE:

Forty-four (44) hours within any calendar week shall constitute a working week. After the employee has worked the regular hours, in any one week, overtime shall be paid at the rate of time and a half per hour of salary rate. Double time of salary rate shall be paid for Holidays (New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas are the six days considered Holidays in this agreement). The employer in lieu of overtime pay, may immediately upon completion of the job to which the employee was assigned, allow the employee to take time off equivalent to overtime incurred. However, 88 hours may be accumulated and used as a seasonal vacation at a time within the year, agreeable to employee and employer.

WHILE ON ROAD ASSIGNMENTS:

Five and one-half consecutive days shall constitute a working week.

Howard Siemon, camera; Cecil Meek, sound, engaged by Metropolitan Motion Picture Company, Detroit, for a series of two pictures.

MAKE THE HORSE A COW!

By MERVIN LA RUE, 666

I Dread to take a picture
 For the man who wants to change it.
 Who says: "That's fine, just what I want
 But let us rearrange it.
 Let's move the building over,
 And give the man a cane
 And add a big umbrella
 In case it starts to rain.
 And change the girl's expression
 To one of glad surprise
 And if it ain't too damn much trouble
 Let's change the color of her eyes.
 Don't clutter up the picture
 With meaningless detail,
 But get a dock in somewhere
 With a boat about to sail.
 And I suggest a troop of soldiers
 And a fat man with the gout.
 Then add a railroad station
 With the train just pulling out.
 The man is running for the train
 And fears he may be late;
 So have him looking at his watch
 With the hands at half past eight.
 And let's not get the thing too crowded
 We must have room for copy
 But give the girl galoshes
 Because the weather's sloppy.
 And make the oak a maple
 And make the horse a cow
 And make the hen a rooster
 And make the rake a plow.
 With these few minor changes
 Everything's O. K.
 We're much behind our deadline,
 Let's have it yesterday!"

Harry Birch, camera; Wally Hotz, sound, and William Weinand assisting in production for Burton Holmes Films, Inc.

Bob Butler of Richmond, Indiana, engaged on a Home Talent Newsreel for several months.

Louis Neville, six sixty sixer of Indianapolis, Indiana, dropped in the office today to explain that he was making movie scenes which took him here and there over a radius of 2,000 miles. Everything seemed to go alright until he hit Detroit and Chicago. At the former he was arrested for starting too fast when the amber light was on, and in Chicago the traffic cop threatened to arrest him for waiting too long at the stop light when it turned to amber.

Eugene J. Cour with Max Markmann are traveling through Michigan on a Pathe PWA production.

Bob Tavernier and "Doc" Gantz make up a second unit producing Pathe PWA pictures.

Loren Tutell assisting John Giessel on a sequence for the "March of Time."

Snoopin' the Lens Snoopers!

By RED FELBINGER, I. A. 666

WELL, we broke another heat record today, according to the newspaper I just read . . . so I sit here trying to fill enough space to make Brother Strafford happy that I have sent in some dirt on the newsreel fraternity . . . so if this reads like the high school annual . . . don't blame it on me . . . it's the humidity. This is Sunday . . . I crawled out of bed at 8 A.M. all full of vim and vigor to bat this out . . . then I got delayed watching my daughter, Rita Joyce, a'sittin' on the living room floor trying to eat up all the furniture . . . which seemed mighty cute to this here father . . . so here it is bedtime . . . and another Sunday has almost given up the ghost and here I sit, still in my pajamas . . . with a dozen empty beer-cans spread before me and when I try to figger just what has gone on in the newsreel game the past month I find the calendar just about as empty as this here day which is departing.

The Army held its big annual war maneuvers here in the middle west this year and it was about the only event I got to where most of the gang was represented. The show opened at Selfridge Field where Floyd Traynham and myself did the ground stuff while Uncle Lippert flew in one of the army's new hot crates to get the "upstairs" stuff. Old Pete Simon showed up to give Floyd Traynham a hand and made his debut on an Akeley . . . Pete admits these Akeleyes seem a little harder to juggle around after the old Universal that has been Pete's standby these many, many years. . . . Then the show moved to central Michigan and the gang was enlarged by the presence of Sam Savitt and Emilio Montemuro for the maneuvers by the mechanized cavalry and when a guy gets mixed up with these tanks for a couple of hours, you can bet your sweet life the balance of your evening is spent under the shower . . . these new-fangled tanks sure kick up an awful mess of dust . . . and the gang had three days of it. . . . Martin Barnett on this assignment became so tank conscious he felt he was driving one, after the maneuvers. . . . It took two army trucks to tow him out of a sandpile . . . after he discovered his new puddle jumper couldn't maneuver quite as fast as the new iron horses of the army. . . . Floyd Traynham tried to beat one of the new iron horses to a narrow bridge . . . but it ended in a draw and four fenders pleated according to army regulations on Floyd's hack. . . . The two incidents were the only newsreel casualties in the war.

Tony Caputo, so I am told, has now laid his tripod and camera aside, temporarily, to turn director. Tony is directing the WPA shorts his reel is producing for the government. . . . Gene Cour and Bob Tavenier are doing the grinding on Tony's Opus.

Prosperity sure has hit the cranking game from what I kin see . . . try and get an extra man nowadays. . . . Everybody seems to be filling a spot . . . around the Chicago area . . . well, I hope it lasts . . . especially after the way things have been slowed down the past few years.

Martin Barnett has pulled stakes from his first freelance love and is now a budding "Hearstling" . . . on a freelance basis.



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While out Kansas City way, Jack Barnett has left the Landon camp temporarily, to make a new set of pictures of Jaqueline to flash to the boys when they congregate on the next big assignment. . . . John Muller has checked out of Kansas City to assume charge of the Chicago Hearst office. . . . Norm Alley is in New York doing a short for Hearst-M-G-M on "My twenty-five years as a newsreel ace," in which Norm acts as commentator on all the big stories he has covered in his career behind a lens . . . Congenial Jack Dunne has moved to the higher altitude of Denver, there to twist dials for Lee Orr. . . . Good luck, Jack, the old gang around 13th and Michigan sure enjoyed working with you, and here's hoping we cross paths with you in the near future.

With both political parties about to invade the middle west within the next few weeks, it looks like all the boys will start rolling around the prairie states . . . here's hoping to see you on one or two of the big shows. . . . See you then or next month. . . . Hoping the heat doesn't get you before then.

MINIATURE AND CANDID Photography —

By HARRY BIRCH, I. A. 666

THE story about the mail man that took a walk at Xmas may also apply in the case of photographers, who for the sake of doing something "different," spend their spare moments playing around with miniatures. Cinematographers especially seem to have the yen to "shoot" a miniature camera "just for fun" and then spend their evenings with a developing tank or at an enlarger.

The writer is the owner of a miniature camera, a good one that was manufactured way back when. It is one of the first models and is still a swell little "box." It has been with me wherever I go and because of the economy on negative cost and the simplicity with which my camera works, it has really become a pleasant hobby.

I have noticed lately that there is considerable interest shown among men in the craft in their discussion about various films, developers and papers for the best results from miniature negatives. From my own personal experience, I have tried a great many films, developers and papers. I hope that anyone that reads this article will not misunderstand me. I am not trying to tell you what you should do or how you should do it, but there may be some things that I have found that may help you. Your method of handling miniatures may be entirely satisfactory and you may be following an entirely different line of procedure and getting excellent results. As you read here, if you do not agree with things that I claim, just write in to Cinema Digest and tell us. I think we are all, even as old as some of us are, anxious to learn the other fellow's method, if we find that it is better than the one we are using.

Going back some years, that is when I started my hobby of miniatures, I met up with that "dam nuisance"—"GRAIN"—the one thing that nearly killed my desire to continue spending time with my little camera. As time passed I tried many developers and still was unable to eliminate grain to enable me to get an enlargement that really was satisfactory.

However, in the last couple of years, things have changed and today it is a different story. I can now get enlargements up to 11x14 from my miniature negatives that lack the grainy effect that I used to get on 4x5 enlargements. Today we have fine grain developers that have proved beyond a doubt they are able to do the job, giving beautiful negatives. In fact, these fine grain developers are given to us in formula form for those that wish to "mix their own" and are also given to use in prepared form, where all we have to do is mix the preparation with so much water (distilled) and then develop our rolls.

There are many of these developers on the market, but in general, fine grain formulas may be divided into three classes. There is, let's say (A) the metol-hydroquinone-borax such as the Eastman D76; then, (B) the Paraphenylene-diamine, such as Sease No. 3 or Purdon formulas, and then (C) the "Compromise" such as Edwal No. 12. The writer, however, has found that the Edwal No. 12 is a great all around developer for correctly exposed nega-

tives. Of course, to get the proper results it is absolutely necessary that negatives should be developed by time and CORRECT temperatures. Distilled water is always used in mixing developer and should also be used for "soak and rinsing."

However, negatives that are underexposed, where sufficient light was lacking in exposure the metol-hydroquinone-borax developer has given remarkable results. Detail is brought out more fully at the expense of some grain. I have heard it said and I have proved to my own satisfaction that where negatives have been fully timed, and developed with the Paraphenylene-diamine, they will have extremely fine grain, but they will lack the gradation quality of negatives developed with the metol-hydroquinone-borax class of developer. It was a problem at first, if you wanted gradations you got grain, and if you wanted to eliminate grain you lost gradation in quality.

My reason for choosing and continuing to use the Edwal 12 is due to the fact that it is Paraphenylene-diamine with a more active developing agent, metol, and gives excellent negatives where correct exposure has been given to the negative. I have found that this developer works equally as well on the slower films such as Panatomic, Micropan, Plenachrome, etc., as it does on the super-speed films. However, the developing time for these slower films is two-thirds of the developing time for the super-speeds films.

For finished quality there is an advantage and I have experienced the pleasure of securing absolutely beautiful prints, enlarged many times, from slower film. It is fine where you have plenty of time to give your negative, but for all around work and in photographing action unless you have real bright sunlight, I do not attempt to use any of these slower films.

In contrast, I have found that the exceptionally fast films, that is the films with the Weston factor of 32, also have their drawbacks. Regardless of how careful I have been in exposure and developing, I have always found grain, even with fine grain developers, where I have used the extreme fast stock. A compromise you will find to be a good one is to sacrifice a little speed and cut the grain to a minimum by using the super-sensitive films that are rated by Weston with a factor of 24.

There are many times when a perfectly good picture has really lost its beauty because of the lack of grain. After all is said and done, if prints were made with absolutely no grain whatsoever, you would have a print that would be rather contrasty and lacking its proper beauty. I do not mean to infer in this little talk that I have tried to eliminate grain completely, but I have through the careful developing and handling brought my negatives through with grain reduced to a minimum. By the expression "reduced to a minimum," I mean that grain has been brought to a point that when a print (an enlargement) is finished, one sees the picture without silently thinking—"Ye Gods, look at that grain."

There are a great many things that can be said about the miniature negative, exposure, handling and uses. For the readers that have had the patience to read through these notes and are users of miniature cameras, if you have any little "secrets" that you feel that you would like to let the boys in on—well, shoot them in to us. If you have some problems and we don't know the answers, shoot them in too—we'll call on some of the mimicam experts in Chicago and see if we can find the answer. Let's go, you mimicam users, let's hear from you.

*Say you saw it in Cinema Digest
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VI'S KRAX

"Leek's" to the people who send us college boys burning with ambition to set the world on fire as "News-reelers."

Who is the wealthy cameraman that is supporting a "Notary" on "Protest Fees" for bouncing checks?

After two years Pasquale is on a much earned vacation from the Filmack Trailer factory.

This Local has one assistant that had foresight enough to get out of a car that a certain director was driving seventy miles an hour around mountain passes. Later he learned he was right as the car was wrecked and the occupants woke up in a hospital emergency room.

"Please wear a cap, 'Rich'." I would have enjoyed the Lantern Parade Labor Day night at Soldier Field if your bald head hadn't thrown off so many reflections.

Sorry but I can't seem to write very much this month. I guess it's because I'm leaving about the 15th of September to go up to Callander, Ontario, to see "Papa" Dionne.

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BUSINESS FILMING

By MERVIN W. LA RUE, I. A. 666

LAST month we spoke of the demand for teaching films in the various fields of medicine and surgery and pointed out some of the requirements which would have to be met in the preparation and production of such subjects as would be acceptable, and in financing them. As business continues to improve, we feel certain, that many of the pharmaceutical and equipment manufacturers depending upon the good will of the medical profession for their business will see the promotional advantages in sponsoring such films.

In order that the commercial house sponsoring such films may secure the greatest possible return each film must be designed to definitely serve the physician. The practicing physician or surgeon is not at all interested in how the manufacturer makes his product but he is interested in learning how it was developed, its clinical results, and how and when he should prescribe it for the benefit of mankind. Selfishness on the part of the sponsor, can only raise the question of ethics and limit the use of the film by the very groups he is most anxious to reach.

For instance, a manufacturer of a product of accepted merit in a particular field can sponsor a scientific film treatise on the disease or condition for which it is used. If such a film is prepared with the co-operation and assistance of medical authorities on the subject, the film will be widely accepted and used by medical groups. By helping the physician or surgeon to accomplish his purpose everyone profits—the physician who must keep up to the minute with new discoveries and methods in the treatment of disease, the patient who receives the benefit of this knowledge on the part of the physician—and the manufacturer whose product is prescribed because the physician has confidence in the product and in the integrity of the organization making it. A program designed so that everyone profits is certain to reach its objective.

However, the above is largely the worry of the creative and sales department but what about our problem as the cameraman who will have to shoot the subjects which will vary all the way from simple skin lesions to the most painstaking problem in microscopic technique? Well, each problem is different and this makes the work interesting.

The first requirement of the cameraman is a strong stomach and the ability to handle his equipment with speed and accuracy, for much of the work will no doubt be in the operating room where he will be expected to anticipate and follow every move of the surgeon and assistants without an opportunity of stopping for change of set up, focus or lighting.

In most of our regular work we are used to taking charge of things and setting our stage so as to get the best results. We move people and things about at will so as to improve our composition, lighting, action, etc. There is only one boss in the operating room and that is the surgeon in charge. We have to learn to take orders instead of give them and get perfect results regardless. This is not so hard as it may seem if we are thorough in our preparation beforehand.

It is absolutely essential that cameraman and surgeon go over the script together, several times if necessary, beforehand, so that the cameraman has the whole procedure pretty well in mind. The habit of most surgeons in making sketches when describing an operation is most helpful and particular attention should be given any change made in the posture of the patient during the operation. It is most confusing to have the surgeon suddenly move the area of operation at a critical point in the operation

when we are not expecting it. Especially is this true when we are perched up in the air, outside the sterile field and using a four or six inch lens. If the surgeon is made familiar with your problems and you have a pretty thorough knowledge of just what he is going to do, excellent teamwork can be secured.

It is imperative that all camera and lighting equipment be outside the sterile field. For this reason it is necessary that everything be in readiness beforehand. With a knowledge of the exact area to be covered, the position of the patient at all times during the operation, etc., the operating table is placed in position and locked down. Position of camera and lights is then determined and everything set up ready to go.

Now as to equipment required.

A motor driven camera equipped with thousand foot magazines is essential together with a full complement of lenses. Mazda lighting only is permitted and for absolute safety an anesthetic other than ethylene is recommended.

The thousand watt clear bulbs in suitable reflectors which permit them to be spotted are the most efficient, but where the lines are not heavy enough to carry the load the large foto flood bulbs can be used to advantage. Spot lighting is much to be desired although a sufficient number of reflectors or spots should be used to break up the shadows of the surgeon's hands and these should be so placed as to sufficiently illuminate deep incisions and still maintain well balanced proportions thus avoiding flatness.

The surgeons and nurses will be grateful if you spot your lighting well and use only enough to get a fully exposed negative at F 4.5 which will give sufficient depth of field in most instances.

With everything in readiness the patient is placed in position and before starting the operation the surgeon is requested to use a scalpel or other instrument and indicate his landmarks for focusing. All lenses which may be needed during the operation are focused at this point and adjusted to their proper stop. The camera is anchored in position and started—the surgeon goes ahead. In many operations there is a lot of routine work necessary such as tying off blood vessels, etc., which takes footage. Where these details can be left out it can be arranged that the surgeon signal the camera with the words "go" and "stop."

With the operation planned in advance it is possible to swing the camera turret so as to use a shorter focus lens where it is necessary to show position of assistants and nurses, changed position of the patient, etc., and then go back to the original lens without loss of time.

As in everything—practice makes perfect and as the surgeon becomes familiar with your requirements and you with his—perfect teamwork will result.

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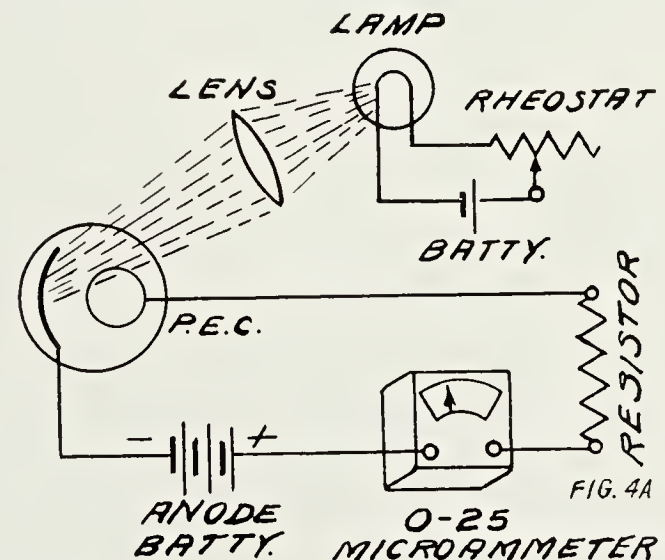
Boost Local 666

THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Section IX—Putting the Photo-Electric Cell to Work

WHEN a photo-electric cell is connected as shown in Figure 4A, a current will flow through the resistor of the circuit. The amount of current depends on the voltage on the anode and the amount of light passing through the window of the cell to strike the cathode. Now, as far as the current flow is concerned, this circuit is identical to any other. There is a drop in voltage across the resistor now placed in the circuit, as in any other, and the amount of this drop depends on the amount of current flowing through it, in turn dependent on the amount of light striking the cathode.



The illumination of the lamp in television is usually constant, but the reflection of light from the picture or other surface varies constantly as shown in the curve of Figure 2C. When these varying amounts of light are reflected into the photo-electric cell, the voltages across the resistor of Figure 4A will change constantly.

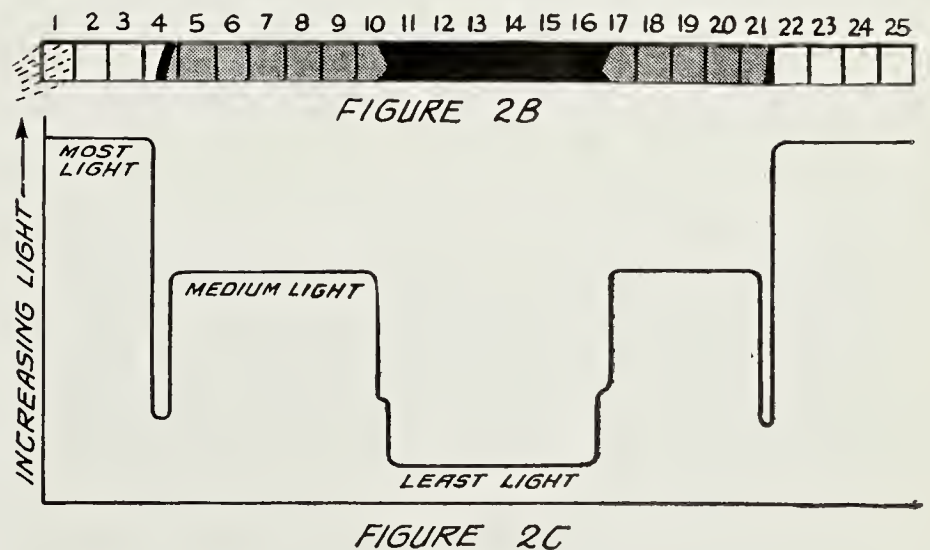


Figure 8 shows the resistor of Figure 4A as a coupling device, with a circuit similar to that used to connect a condenser microphone to its pre-amplifier.

Here the left hand portion is identical to that of Figure 4A. The photo-electric cell is resistance-coupled to the amplifier tube, using the anode resistor as the coupling resistor. The customary coupling condenser, grid leak, biasing battery and radio tube perform their usual functions.

Turn to Page 12

Applying the Yardstick in the Making of Motion Pictures

EXPOSING MOTION PICTURE FILM

By D. E. HYNDMAN and H. E. WHITE
East Division—Motion Picture Film Dept.
Eastman Kodak Company

WHEN using Motion Picture Negative Film in making motion pictures there are two major problems to be considered; first, the question of determining the correct exposure to secure correct rendition of the reflected object brightness and second, the question of determining the proper time of development in a selected developer to produce the desired fineness of grain and contrast to make a good quality positive or print. Some actual experience is essential to determine the correct exposure for a given film even when photometers or light intensity measuring meters are used because it is necessary to use the photometer intelligently otherwise over and under exposures may result in the highlights and shadows dependent upon the method used in photometering the scene or in estimating the exposure for the scene. Exposing to obtain the nearest possible correct exposure on the object of greatest interest is generally considered the best procedure as the other material in the finished picture is usually of incidental interest. No practical method for determining the correct exposure has been evolved which is simplified enough for universal application but the use of photometers is considered to be of helpful assistance and many cameramen in Hollywood use them for out of door photography and as an aid in balancing lighting on studio sets to improve the quality of the finished product.

There are two different methods of controlling negative development, the choice between which seems to be about equal. One is the constant time method of development in which the developing solution is maintained at a definite control gamma and density as determined by periodic sensitometric tests and all original negatives are developed under these standardized conditions. The other method is termed the test negative method in which the cameraman furnishes to the laboratory a length of five to fifteen feet each of various scenes from which two to three foot lengths are clipped and developed for a time that has been pre-determined as normal for correct exposures. Following the development of these test strips someone (usually the one who supervises negative developing) in the laboratory visually examines the strips and determines the time of development which in his opinion would be best suited for each take or scene to produce the best results upon the screen. In a commercial laboratory or laboratory associated with a large production company that has several pictures in the making, the number of test strips to be made in this manner is considerable but in general all takes made by the different cameramen can be developed for the time regarded as normal whereas the few remaining scenes may vary one-half to several minutes from the normal time. Laboratories using either system feel that each system has its merits and experience over a period of years has proved that both methods are productive of high quality results.

It does not seem necessary to discuss in detail sensitometric equipment, sensitometric control, and characteristics of developers as detailed data regarding this material has been described by Huse in 1933 (1) and by the Lab-

oratory Practice Committee of the Society of Motion Picture Engineers in 1936 (2). In utilizing either of the above methods for the development of a selected motion picture negative stock, it should be well understood that the continuous developing machine systems are sensitometrically controlled to maintain gamma and density constant for a given development time at a pre-determined developer temperature. It should also be understood in the practical application of sensitometry to the control of the development of motion picture negative film that a sensitometric strip made under the control conditions of time and intensity representing the exposure will give data only as to the degree of development obtained on the particular piece of film exposed. Hence, from a sensitometric strip made on negative motion picture film and developed in a negative bath the laboratory can obtain data that will show only to what definite gamma the negative has been developed; but not information as to the contrast of the picture negative being developed with it, because contrast is a direct function of both the lighting contrast and the film gamma independent of whether the negative is a take of an outdoor scene or a studio set. The contrast in the negative is a function of the degree of development given the negative, but commercially it is more dependent upon balance of lighting in the shadows and highlights when developed in a controlled developing system. The contrast of the positive or print, however, can be altered somewhat by the degree of development which means decreasing or increasing the gamma of the positive. This means that the contrast of a print from a given negative can be decreased or increased by altering the printer exposure to suit variations in the time of development of the positive or print in the controlled positive developer.

Practically all negative developers used in continuous negative developing machines are some modification of the Eastman D-76 Borax Developer or the Eastman Buffered Borax Developer D-76d. Only in a few instances are these developer formulas used in their original concentration because modification in concentration is necessary to fulfill the particular conditions in the various laboratories. These particular conditions refer to the type of developing machine in use, the footage speed of the machine, rate and manner of circulation of the developer, the temperature of the developer and the rate of replenisher supply of the fresh developer.

When the cameraman can be assured that the negative he exposes receives the same type of development on daily production work his problem of controlling exposure is simplified because he is assured that if he exposes the same type of negative film on the same set under the same lighting conditions each day, the negative developed daily will be of constant contrast, gamma and density. Negative developed under controlled conditions permits the cameraman to adjust the balance of lighting so that ranges of contrast or special effects that he desires can be obtained as he wants them instead of being altered in contrast as was the case when the negative developing man developed film by inspection to suit his visual judgment. This reasoning applies to outdoor photography as well as indoor

REFERENCES

1. Huse, E.: "Sensitometric Control in the Processing of Motion Picture Film in Hollywood," J. Soc. Mot. Pic. Eng. XXI (July, 1933) No. 1, p. 54.
2. "Report of the Committee on Laboratory Practice," J. Soc. Mot. Pic. Eng. XXVI (April, 1936), No. 4, p. 345.

photography since it is customary to use reflectors out of doors to adjust the contrast on closeup scenes.

With the presentation of these few factors about the exposure and development of negative films, it is believed that a concise resumé of the characteristics of the various negative motion picture films now available and the characteristics of the filters suitable for outdoor photography with each would be helpful in selecting the best type of film and filter to utilize in photographing various scenes to obtain specific effects.

Characteristics of Eastman Panchromatic Negative Motion Picture Film

EASTMAN SUPER X PANCHROMATIC NEGATIVE MOTION PICTURE FILM TYPE 1227 became available to the motion picture industry early in 1935. This film has two major characteristics that distinguish it from other motion picture negative film now available in that it has the highest speed and lowest development rate. In comparison with Supersensitive Panchromatic film, which preceded it, the Super X Negative has 65% to 75% greater or one and three-quarter times the daylight speed and 40% to 50% greater or one and one-half times the speed to tungsten and it requires 35% to 40% more developing time to obtain the same gamma. Current practice is to develop it to a control gamma approximating 0.70 which requires from eight to eighteen minutes, dependent upon the type of developer and developing machine. The Super X Negative although of greater speed than the Supersensitive Negative has the same homogeneity of grain distribution and grain size and in general exhibits the same grain characteristics. As it has a greater blue and green sensitivity than the Supersensitive Negative film with approximately the same degree of red sensitivity (Fig. I and Fig. II), it requires a greater filter factor number with the red filters to produce the same balance of density as is obtained without a filter.



FIG. I
Super X Panchromatic Negative wedge spectra exposed to light of daylight or sunlight quality.



FIG. IA
Super X Panchromatic Negative wedge spectra exposed to light of tungsten quality.

It is particularly applicable to studio photography with Mazda lighting because of its well balanced sensitivity but this should not be construed to mean that it is not highly suitable for daylight photography particularly as various ranges of contrast can be obtained with the use of the customary filters as will be described under the characteristics of filters for this film.

EASTMAN SUPERSENSITIVE PANCHROMATIC NEGATIVE FILM TYPE 1217 is 60% to 65% or two-thirds of the daylight speed and 75% to 80% or three-quarters of the tungsten speed of Super X Panchromatic Negative Film and requires approximately 25% less time of development to secure the same gamma. Because of the greater speed

of the Super X Negative film, it is almost exclusively used in motion picture work at the present time and the Supersensitive Negative film is mostly used by the miniature and amateur photographers. This film has a lower blue and green speed (Fig. I and II) than the Super X Nega-

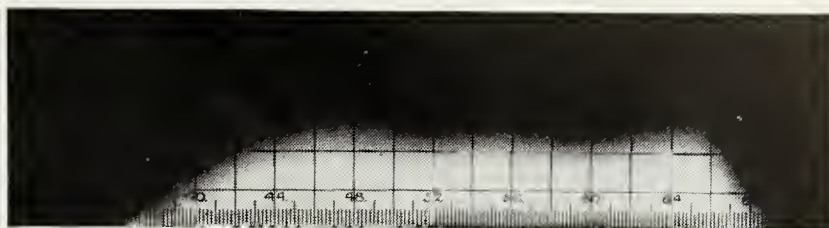


FIG. II
Supersensitive Panchromatic Negative wedge spectra exposed to light of daylight or sunlight quality.



FIG. IIA
Supersensitive Panchromatic Negative wedge spectra exposed to light of tungsten quality.

tive film and consequently the filter factors for the red filters are lower to produce a balance of density similar to the balance of density produced without a filter. This film, like Super X, is applicable to both studio and outdoor photography.

PANCHROMATIC BACKGROUND NEGATIVE FILM TYPE 1213 is of inherently higher contrast than Super X Negative or Supersensitive Negative. It requires approximately half the time of development that is required by Super X Negative to produce a gamma approximating 0.70. The negative is approximately 25% or one-fourth the speed of Super X Negative and approximately 40% to 45% of the speed of Supersensitive Negative for daylight exposure. It is approximately 40% of the speed of Super X Negative and 60% of the speed of Supersensitive Negative to tungsten light. Because of its finer grain characteristic and higher contrast this negative is particularly applicable for making projection background plates used in the well known projection background process. As this process of re-photographing a projected image on a translucent screen is fundamentally one of duplication, it is readily apparent that the higher contrast and finer grain characteristics of this Background Panchromatic Negative are highly desirable features. When it is used for the making of projection background plates, it is usually de-

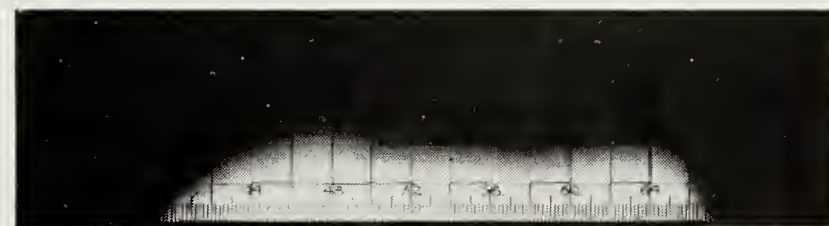


FIG. III
Panchromatic Background Negative wedge spectra exposed to light of daylight or sunlight quality.

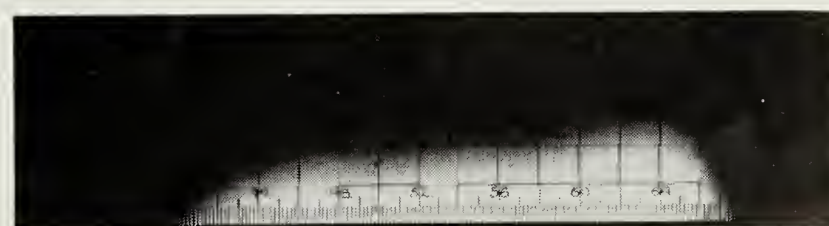


FIG. IIIA
Panchromatic Background Negative wedge spectra exposed to light of tungsten quality.

veloped to a gamma approximating 0.75 in a D-76 type of developer. This film has also found favor with the miniature camera workers who desire fine grain and high contrast for the making of enlargements. It has the same type of spectral sensitivity as Supersensitive Panchromatic Negative and therefore the filter factors assigned to Supersensitive Panchromatic Negative are also suitable for this negative.

PANCHROMATIC K NEGATIVE MOTION PICTURE FILM TYPE 1210 is at present the fastest infra-red sensitized motion picture film that is commercially available. It has 10 to 12 times the infra-red speed of the infra-red sensitized Panchromatic K Negative film that was available a year ago. Because this Panchromatic K Negative has a varying degree of sensitivity throughout the visible spectrum, it is necessary to use deeper red cutting filters than heretofore. The use of these deeper red cutting filters is fully satisfactory because this film has its maximum sensitivity at a wave length of 820 mu.

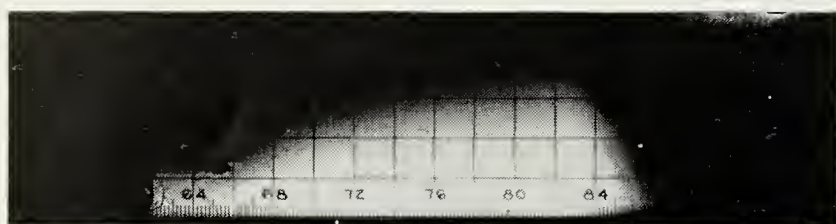


FIG. IV

Panchromatic K Negative wedge spectra exposed to light of daylight or sunlight quality.

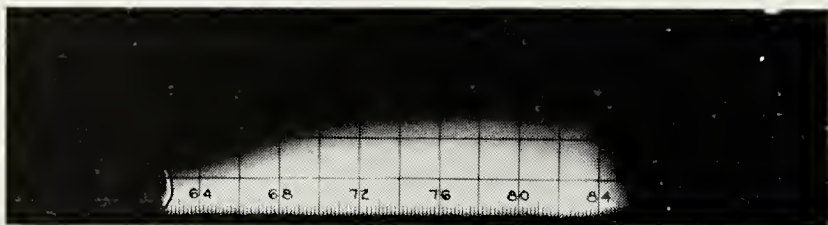


FIG. IVA

Panchromatic K Negative wedge spectra exposed to light of tungsten quality.

The deeper red cutting filters with this film give more desirable correction than was obtained with previous infra-red sensitized film. To obtain agreeable and suitable contrast, it has been found best to build contrast by developing this film approximately 15% to 25% more than Super X Panchromatic Negative. A little experience in using it will show that the contrast can be altered to some extent by increasing or decreasing the time of development. For control purposes, it is quite satisfactory to make white light exposures on a Type IIB sensitometer as the white light gamma approximates the infra-red gamma. This film, when screened with various types of the deep red filters, is suitable for making varied "shots" of landscapes or seascapes and it is particularly applicable to general air photography. The type of deep red cutting filter used determines the varying degrees of blackness in the sky and water areas that can be obtained in the positive or print. It has a tendency to make clouds, boats and other objects stand out in relief and gives a very desirable contrast and relief in air photography because it materially reduces any apparent haze. Often objects that do not appear visibly clear will be quite clear in the positive or print, if the take is made with this film and the camera lens screened with one of the deep red filters. This film has no application unless a correction filter is used. Further details about its use with filters will be given later.

In using any of these films for daylight or out of door photography, the selection of the correct filter to obtain an agreeable contrast for special takes materially en-

hances the photographic quality of the positive or print. It is hoped that the following information about the most commonly used filters will be of assistance to those who are not acquainted with the changes in photographic quality that can be obtained with progressive cutting filters.

Filters

To gain a clear conception of the practical use of light filters one might conceive that they are "light transmitters" or "light absorbers." The word filter, however, is applicable to both transmission and absorption in that a light filter selectively filters out the undesirable light and transmits that which is desirable.

The Eastman Wratten light filters are prepared from organic dyes of which a great number have been investigated in our Research Laboratories and consequently we have been able to prepare a series of filters of unusual purity and brightness. The filters are made by coating gelatine containing a given weight of dye upon prepared glass and after drying the gelatine film is stripped from the glass. Each filter is standardized by comparison with a permanent standard in a special instrument which applies an optical form of limit gauge to its color. These filters are supplied in the form of gelatine film or the gelatine film may be cemented between two optical glass flats.

The filters described are those used to the greatest extent in average motion picture photography. In choosing a filter to screen the camera lens, it is necessary for the cameraman to determine from experience the effect he desires for exposure to a specific scene. It should be remembered that to subdue a color a filter that is the complement of that color should be used while to lighten a color a filter of the same color which fully transmits the desired color and subdues the others must be used.

Whenever possible, it is preferable to use the filters mounted in optical glass flats as the filters so mounted can then be readily cleaned the same as camera lenses. Using the gelatine films necessitates exceptional care in handling as the films, finger-mark easily and have a tendency to become abraded and scratched. Finger marks, abrasions and scratches destroy the filtering quality of the filter and in addition are liable to cause irregular definition.

Filters for Eastman Super X, Supersensitive and Background Panchromatic Negative Motion Picture Film

AERO 1 is a light yellow filter with a factor of 1.25 for daylight illumination for Super X, Supersensitive, and Background Panchromatic film. It is used when a small amount of correction is desirable and is of particular value in obtaining a just detectable darkening of the sky area in the positive or print. It produces no effect upon normal Panchromatic makeup.

AERO 2 is a slightly deeper yellow filter with a factor of 1.5 for the three films and is quite adequate for general exterior photography. Like the Aero 1 it produces no effect upon normal Panchromatic makeup and therefore need not be considered detrimental from this standpoint. Due to its blue-violet absorption it produces in landscape photography a noticeably darker sky in the positive or print and enhances the general picture quality by increasing the contrast between cloud and sky area. In seascapes the water is only slightly darkened in the positive or print. It is used when a correction greater than the Aero 1 is desired and when a noticeable increase in contrast between blue sky area and clouds is desired.

3N5-5N5. These two filters are respectively the Aero 1 and Aero 2 chemically combined with the neutral density

filter dyes of 0.50 density. These filters were devised primarily to enable the cameraman to get the correction of the Aero 1 or Aero 2 filters and at the same time permit operating the camera at greater diaphragm openings or stops or in the practical terms using the lens relatively wide open. These filters are often used when it is desirable to have the foreground or object of interest in sharp focus and the background or material of least interest in soft focus. The filters are particularly useful on scenes in which the illumination is extremely high and highly reflecting surfaces predominant. The factors are 4 and 5 respectively for the three films.

G is a deep yellow orange filter with a factor of three for the three films. This filter is used when more pronounced effects or contrast are desirable than can be obtained with either the Aero 1 or the Aero 2. It is considered one of the most satisfactory filters for landscape and seascape work. It darkens the sky area in landscapes producing a very agreeable contrast between clouds and blue sky area and has a tendency to bring the foreground out in a more general relief. In seascapes it darkens the sky area and water so that boats and other objects of general interest stand out more clearly producing a desirable increase in general contrast. This filter does not objectionably lighten normal panchromatic makeup.

23A is a light red filter having a factor of 3 for Supersensitive and Background Panchromatic film and a factor of 4 for Super X Panchromatic film. It is necessary to utilize a greater factor with this filter for Super X Panchromatic film because this film has proportionately more blue and green sensitivity than either Supersensitive or Background Panchromatic films. This filter is used to increase contrast on exterior photography and is particularly useful to secure pronounced contrast for cloud effects and seascape shots. In landscape photography it will produce in the positive or print a dark sky without materially lightening the foreground, but in seascape photography both the sky and water are darkened considerably. This filter slightly lightens normal Panchromatic makeup.

25A is a medium red filter with a factor of 4 for Supersensitive and Background Panchromatic film and a factor of 5 for Super X Panchromatic film. It is used when a contrast type of exterior photography is desired that is more pronounced than that obtained with the 23A filter. In landscape photography it generally produces in the positive or print a more darkened blue sky area and slightly lightens the foreground and in seascape photography both the sky and water are markedly darkened. This filter lightens normal Panchromatic makeup to such an extent that it is often objectionable.

29F is a deep red filter with a factor of 8 for Supersensitive and Background Panchromatic film and a factor of 10 for Super X Panchromatic film. This filter is used only when a very high contrast type of exterior photography is desired. It produces a very dark sky and lightens the foreground tending to decrease the contrast or flatten the foreground. This effect is pronounced if considerable verdant foliage is in the landscape. It likewise produces a very dark sky and sea in seascape scenes.

72 is a dark deep red filter used to produce night effects in daylight. The best results are obtained on any of the three films when this filter is used at the full aperture of the lens, that is, F.2.3 to F.3.5. For full exposure in bright sunlight with this filter and normal development a thin negative is produced which will give a positive or print having a more natural night effect than is obtained by using one of the neutral density filters or by under-exposure without a filter.

ND 0.25, ND 0.50, ND 0.75 and ND 1.00 are neutral density filters having respectively factors of 1.8, 3.1, 5.6 and 10 for all three films. These neutral tint filters permit the reduction of light intensity in a known and definite manner without substantially affecting its spectral quality. The filters are used in any type of photography in which it is desirable to work at a greater aperture or stop than can be used without a filter. Due to using the lens at greater aperture the depth of focus is decreased when screening the lens with these filters. Therefore the use of one of these neutral density filters permits sharp focus on the objects of interest and soft focus on other incidental objects in the foreground and background.

Filters for Eastman Panchromatic K Negative Motion Picture Film

29F is the lowest cutting deep red filter recommended for use with Panchromatic K film. This combination is only used when unusual effects are desired. In landscape photography this filter and film produce in the positive or print a black sky and lighten foreground that contains considerable verdant foliage, thus building up relief to a very desirable degree of contrast. In seascape photography the sky and water are blackened in the positive so that clouds, boats and other objects stand out in relief. This filter and film are particularly applicable to general air photography. When normally exposed negatives can be made planes and clouds stand out in clear relief against a sky varying from very light to dark grey dependent upon the exposure given the print. Because of the varying intensity of infra-red light at different times of the day and in different localities, it is difficult to assign a reliable factor. For landscape photography in bright sunlight, good exposures have been obtained using this filter at lens apertures or "stops" of F.5.6 to F.4.5 and for seascape photography at lens apertures of "stops" of F.8 to F.5.6. For air photography in a clear bright sky, good exposures have been obtained with this film and this filter at lens apertures or "stops" of F.11 and F.8. If the light is dull or semi-cloudy (i.e. no apparent sunlight) exposure on any of the classified scenes should be at the greatest diaphragm opening or with the lens wide open.

70 is a deep dark red filter used to obtain unusual effects when a black sky or black water or both are desired in the positive or print. The same diaphragm opening or "stops" can be used with this filter as are used with the 29F filter. This filter produces blacker sky and water and lightens the foreground slightly more than the 29F filter. Verdant foliage with this filter has a tendency to be a very light grey in the positive or print giving an appearance similar to a night effect made in daylight with Super X film and a No. 72 filter. With this filter very unusual effects of contrast and reflected lighting result in the print if the Panchromatic K Negative is correctly exposed and developed.

88 is a very deep dark red filter that should be used only where a pronounced effect is desired. This filter produces a black sky, almost black water and lightens verdant foliage to such an extent that it often appears as if snow were on the leaves. The minimum exposure for any type of scene would approximate F.4.5 but with few exceptions exposures should be made with the lens at the greatest aperture or stop.

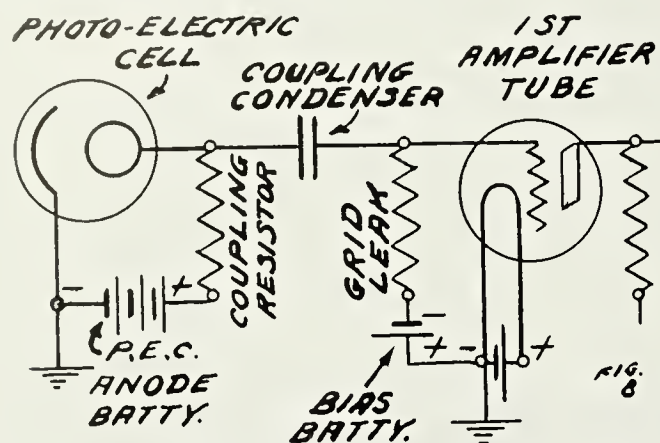
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THE ELEMENTS OF TELEVISION

Continued from Page 7

The varying amounts of light reflected by the picture into the photo-electric cell cause constantly changing voltages across the coupling resistor, and these in turn are transferred to the grid of the tube to be amplified and passed on to the succeeding tubes in the manner common to radio.



Section X—The Scanning Disc

Preceding paragraphs have shown that a picture can be broken into pieces, and the desired changes of voltage and current obtained by the reflection of light from the lights and shadows of the pieces into a photo-electric cell. The next step is consideration of a means of manipulating the light beam to scan the picture so as to reflect the lights and shadows in a definite order.

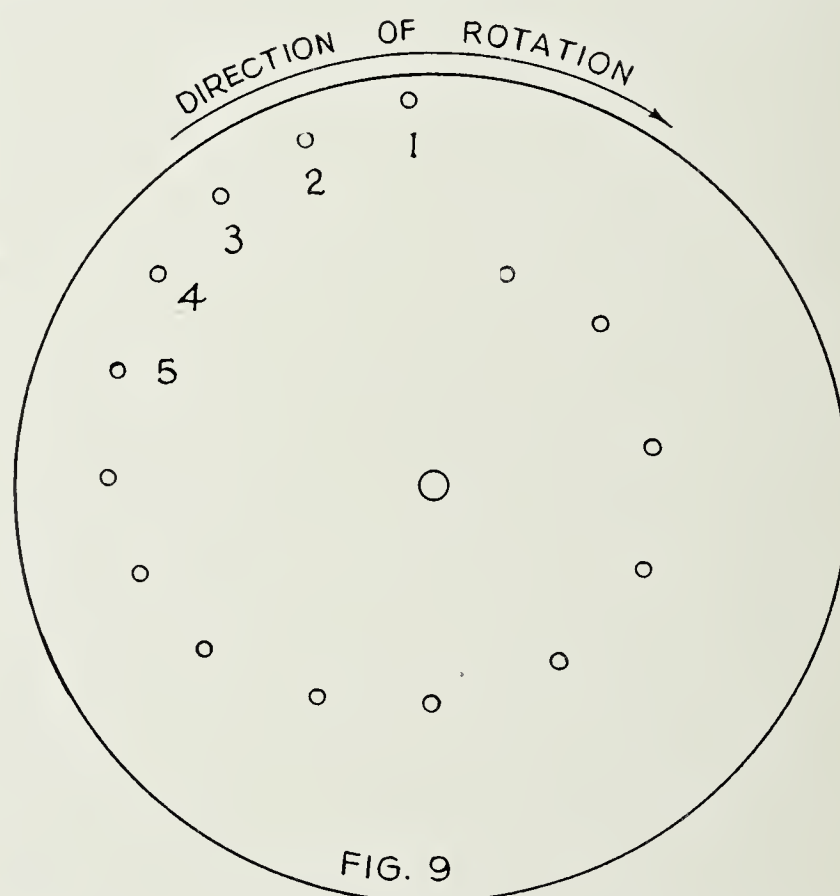
This science is not as new as might be thought, for a device to accomplish this purpose was known some fifty years ago. In 1884, a German named Paul Nipkow applied for a patent on a SCANNING DISC which is being used, in one form or another, to this day.

The Nipkow disc is a circular, flat piece of metal with a group of holes arranged in spiral fashion inside the outer edge. Such a disc is illustrated in Figure 9. When used for television purposes, the disc is from six to thirty-six inches in diameter, dependent upon the size of picture desired and the number of holes in the spiral, this latter being a function of the fineness of detail in the transmitted picture.

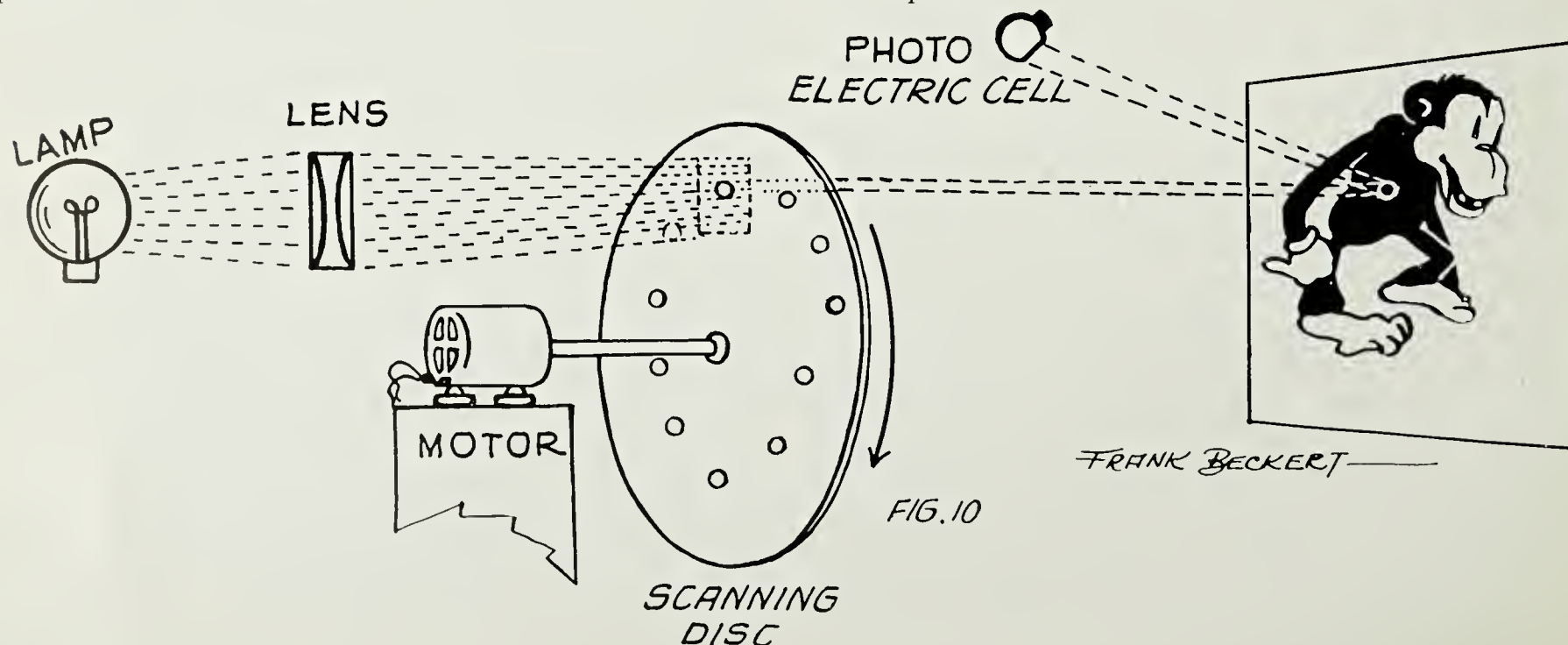
When the eye is focused on the upper part of such a disc as it is rotated in the direction shown, the successive holes gradually become lower and lower. After one complete revolution, hole No. 1 starts in again, and the process is repeated.

The angular distance between holes is the same throughout the spiral, while the distance from the center of any hole to the center of the disc is greater or less than the distance to the center of any adjacent hole by an amount equal to the width of one hole.

Figure 10 shows a set-up which might be used for the transmission of pictures by the scanning disc method. Here is a lamp of fixed brilliancy transmitting its light



through the lens and the holes of the scanning disc as they are turned into the path of light by the motor. The ray strikes the picture which reflects light into the photo-electric cell. The amounts of light reaching the cell will be proportional to the amounts of the lights and shadows of the picture.



If the disc is stationary only one spot of the picture will be illuminated. If the disc is turned slowly by hand, the illuminated spot will move across the picture in the direction of rotation of the disc. As the ray shining through the first hole disappears over the right-hand edge of the picture, light starts coming through the second hole at the left-hand side of the picture. This will sweep across just below that which just disappeared over the right-hand edge. The third hole will furnish illumination for the sweep just below that furnished by the second, and so forth. Figure II illustrates this very clearly.

Section XI—Functions of the Scanning Disc

When the disc is revolved one complete revolution, as many light spots will sweep across the picture as there are holes in the scanning disc. Hole No. 1 sweeps over the picture at the top, and the last hole crosses at the bottom. Thus the picture is scanned once for each revolution of the disc.

Therefore, it is apparent that the number of LINES into which the picture is divided is equal to the number of holes in the disc. To divide the picture into 30 lines there must be 30 holes. In the same way, 60 lines necessitate 60 holes.

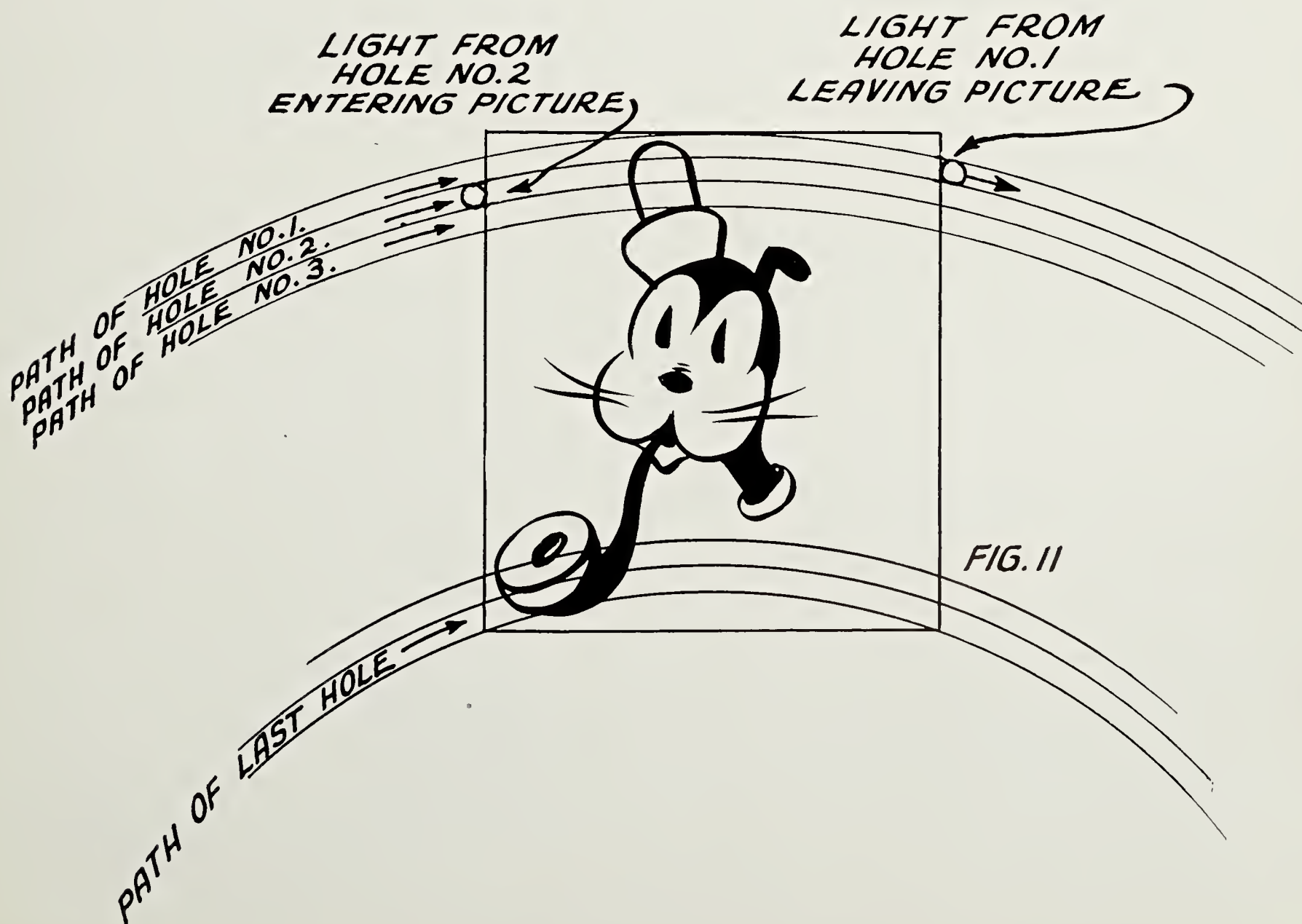
Another fact is evident. If pictures are presented at

the motion picture rate of 24 per second, with but one spiral of holes as shown, the disc must rotate at the rate of 24 revolutions per second or 1440 per minute. The PICTURE FREQUENCY determines the speed of the disc.

In Figure II, the first spot of light leaves the right-hand edge of the picture at the moment the second spot enters at the left. If two spots of light were on the picture at one time, the result at the photo-electric cell would be a combination of the two quantities of light, and consequent confusion at the receiving end. Too, if the holes were farther apart than the width of one picture, there would be momentary spots of darkness at the photo-electric cell at the end of each line. This indicates that the width of the picture should be equal to the distance between adjacent holes of the spiral of the disc. The width of the picture FRAME must be exactly that of the distance between adjacent holes of the disc.

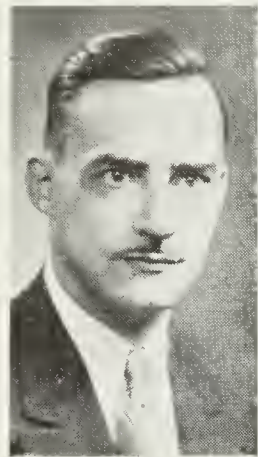
Since hole No. 1 sweeps the top and the last hole sweeps the bottom, this must be an indication of the picture's height. Or, in different terminology, the distance between the top of hole No. 1 and the bottom of the last hole from the center of the disc is the height of the picture.

In considering these sizes, it should be remembered that large images may be reduced, before they are scanned, by means of lenses in the manner common in photography.



Cinemabiography

WALTER HOTZ was born just before the turn of the century at Peotone, Illinois, where he spent his childhood and early school days.



Walter Hotz

After completing a technical course in electrical engineering in Chicago, decided to join the Navy and see the world. His sailor's itinerary included Constantinople, Venice, Nice, Barcelona, Lisbon and Glasgow, also both coasts of North America from Halifax to Panama on the Atlantic and from Kodiak, Alaska, to Panama on the Pacific. And for the duration of the World War served as first class radio operator in charge of radio on board a transport ship.

After Walter came "sailing home again" he became allied with the Bell Systems and aided in engineering the first Public Address System installation in Chicago, and later took charge of these installations throughout the middle west. Noteworthy among these were, the late Calvin Coolidge's visit to Chicago, Warren Harding Memorial services in Detroit, Michigan, and the Lloyd George visit to Chicago and Cleveland.

In 1926 he felt the call of radio broadcasting and joined the forces of WGN. He later became assistant chief engineer in charge of their Studio Engineering Department.

Became affiliated with Pathe News in 1929 and that time became a member of Local 666, covering 296 stories for Pathe in a little more than two years in all the middle western states from the Canadian border to the Gulf of Mexico. In the past five and one-half years has been employed by Burton Holmes Films, Inc., as chief sound engineer.

Walter is married and has a son 9 years of age who thinks his dad is the best sound engineer in the world.

THE CARMILL ENLARGING EASEL

THE Carmill Enlarging Easel is a light, compact and efficient piece of equipment that eliminates all enlarging problems for the photographer.

The operation of this easel is so simple that a small child can produce perfect results.

One adjustment of the easel and enlarger is all that is required to produce exact copies in rapid succession.

The paper is held perfectly firm and flat over the entire area regardless of the angle at which the easel is placed.

The image from the enlarger passes directly to the bromide paper and not first through any other material such as glass, etc.

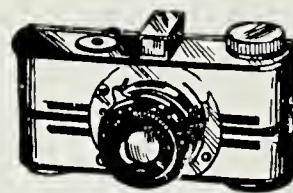
The use of the CARMILL ENLARGING EASEL prevents excess curling of the paper.

If desired, pictures may be made with borders by using the masks furnished with this easel.

THE CARMILL ENLARGING EASEL may be used with either a vertical or horizontal enlarger.

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INDUSTRY—By Louis Kramer, I. A. 666

OCTOBER, 1936
VOL. 2 No. 10

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CHICAGO, ILLINOIS

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LOCAL 666

By W. H. S.

Mrs. Conrad A. Luperti acknowledges with grateful thanks the money donated by brother members and friends to help her while her husband is recovering from serious illness. To each contributor Mrs. Luperti sends her best wishes and sincere appreciation.

As we go to press we are distressed to announce the passing from this life of Brother Ralph Lembeck who died suddenly of heart disease on September 24th while in Chicago on a visit, his wife and son, Jack Lembeck also Ralph Phillips and the writer were dining with him when the fatal attack occurred. Brother Lembeck was buried in Chicago on Saturday, September 26th, at Oak Woods Cemetery.

For the first time in many years the Newsreel Producers got a break on coverage of the World Series, which was played in New York City. The five Newsreel Producers saved some money in shipping of film, also expenses for extra "labs" for locals as all principal Newsreel Laboratories are in New York City.

Another factor that made the Newsreel people delighted with the series being played in New York was that all their commentators were there.

One reason this column is lacking more in news is owing to the fact I have to get ready for my long planned trip around our territory to gather more news. Listed below are the towns I am going to visit:

Peoria	Austin
Springfield	Dallas
St. Louis	Fort Worth
Memphis	Oklahoma City
Jackson	Wichita
Baton Rouge	Kansas City
New Orleans	Omaha
Houston	Des Moines
San Antonio	Davenport

Hope I get some good news.

LADY LAKE MICHIGAN

By J. ROY HESS

Sometimes when summer's sky is bright,
 Lady Lake Michigan,
 Your blue eyes twinkle with delight,
 Lady Lake Michigan,
 Reflecting back the sun's bright rays
 Into a million diamond sprays,
 A wondrous sight on which to gaze,
 Lady Lake Michigan.

But when the sky is turned to gray,
 Lady Lake Michigan,
 And dark and stormy is the day,
 Lady Lake Michigan,
 When you don white cap, and gray veil,
 And toss about like some great flail,
 Your aspect makes the stoutest quail,
 Lady Lake Michigan.

In all your moods you've charm for me,
 Lady Lake Michigan,
 Your strength and beauty's fair to see,
 Lady Lake Michigan,
 From you I get a goodly measure
 Of life's sensations, mostly pleasure;
 I count you as a worthy treasure,
 Lady Lake Michigan.

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NEW TABLES

Filter Factors

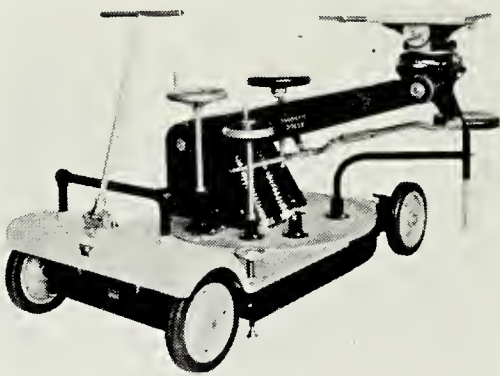
These filter exposure tables for daylight, expressed in figures 5 and 6 values for Eastman Super X Panchromatic Negative and Eastman Supersensitive Panchromatic Negative and Eastman Background Negative will be found very useful. They were fully explained in the Article "Exposing Motion Picture Film" which appeared in last month's issue of CINEMA DIGEST. These tables were prepared by Eastman Kodak Company.

No Filter	Aero 1	Aero 2	3N5	5N5	12	G (15)	23A	A (25)	F (29)	ND 0.25	ND 0.50	ND 0.75	ND 1.00	72
1.4														
1.8	1.6									1.5				Night
2.0	1.8	1.6								1.7				effect
2.3	2.0	1.8			1.4					2.1	1.6			filter
2.8	2.5	2.3	1.4		1.8	1.6	1.4			2.4	1.8			used at
3.2	2.8	2.6	1.6	1.4	2.0	1.8	1.8	1.6		2.6	2.0	1.5		
3.5	3.1	2.8	1.8	1.6	2.2	2.0	2.0	1.8		3.0	2.3	1.7		f.2.3
4.0	3.6	3.2	2.0	1.8	2.5	2.3	2.3	2.0	1.4	3.4	2.5	1.9	1.4	to
4.5	4.0	3.7	2.3	2.0	2.8	2.6	2.6	2.3	1.6	4.2	3.2	2.3	1.8	f.3.5
5.6	5.0	4.5	2.8	2.5	3.5	3.2	3.2	2.8	2.0	4.7	3.5	2.6	2.0	
6.3	5.6	5.2	3.2	2.8	4.0	3.6	3.6	3.2	2.2	6.0	4.5	3.4	2.5	
8.0	7.1	6.5	4.0	3.6	5.0	4.6	4.6	4.0	2.8	8.2	6.2	4.6	3.5	
11.0	9.8	9.0	5.6	4.9	7.0	6.3	6.3	5.6	3.9	9.3	7.1	5.3	4.0	
12.5	11.2	10.2	6.3	5.6	7.9	7.2	7.2	6.3	4.4	12.0	9.1	6.7	5.0	
16.0	14.3	13.0	8.0	7.2	10.0	9.2	9.2	8.0	5.6	16.5	12.5	9.3	7.0	
22.0	19.7	18.0	11.0	10.0	14.0	12.5	12.5	11.0	7.8					
Factor	1	1.25	1.5	4	5	2.5	3	3	4	8	1.8	3.1	5.6	10

FIG. V
Eastman Supersensitive Panchromatic Negative and Eastman Background Panchromatic Negative filter exposure table for daylight expressed in "f" values.

No Filter	Aero 1	Aero 2	3N5	5N5	12	G (15)	23A	A (25)	F (29)	ND 0.25	ND 0.50	ND 0.75	ND 1.00	72
1.4														
1.8	1.6									1.5				Night
2.0	1.8	1.6								1.7				effect
2.3	2.0	1.8			1.4					2.1	1.6			filter
2.8	2.5	2.3	1.4		1.8	1.6	1.4			2.4	1.8			used at
3.2	2.8	2.6	1.6	1.4	2.0	1.8	1.6	1.4		2.6	2.0	1.5		
3.5	3.1	2.8	1.8	1.6	2.2	2.0	1.8	1.6		3.0	2.3	1.7		f.2.3
4.0	3.6	3.2	2.0	1.8	2.5	2.3	2.0	1.8	1.4	3.4	2.5	1.9	1.4	to
4.5	4.0	3.7	2.3	2.0	2.8	2.6	2.3	2.0	1.8	4.2	3.2	2.3	1.8	f.3.5
5.6	5.0	4.5	2.8	2.5	3.5	3.2	2.8	2.5	2.0	4.7	3.5	2.6	2.0	
6.3	5.6	5.2	3.2	2.8	4.0	3.6	3.2	2.8	2.2	6.0	4.5	3.4	2.5	
8.0	7.1	6.5	4.0	3.6	5.0	4.6	4.0	3.6	2.8	8.2	6.2	4.6	3.5	
11.0	9.8	9.0	5.6	4.9	7.0	6.3	5.6	4.9	3.5	9.3	7.1	5.3	4.0	
12.5	11.2	10.2	6.3	5.6	7.9	7.2	6.3	5.6	4.0	12.0	9.1	6.7	5.0	
16.0	14.3	13.0	8.0	7.2	10.0	9.2	8.0	7.2	5.0	16.5	12.5	9.3	7.0	
22.0	19.7	18.0	11.0	10.0	14.0	12.5	11.0	10.0	7.0					
Factor	1	1.25	1.5	4	5	2.5	3	4	5	10	1.8	3.1	5.6	10

FIG. VI
Eastman Super X Panchromatic Negative filter exposure table for daylight expressed in "f" values.



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GROWING --

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Chicago Film Laboratory, Incorporated, Moves to New Quarters at Eighteen West Walton Place

IT'S a little late for a news article on the subject, but two months ago an event occurred here in Chicago that has occasioned quite a bit of comment throughout industrial film circles in the middle west . . . the grand opening of Chicago Film Laboratory's new sound studios at 18 W. Walton Place.

More than 350 persons—including advertising managers, agency bigwigs, manufacturing and distributing company officials, radio celebrities, and friends—attended the opening. All came to “be shown”; all stayed to marvel at this “Hollywood of the Industrials.”

First in point of interest is location. Eighteen West is just 9½ hundred north between State and Dearborn Streets . . . within walking distance of the loop. It is the ONLY completely equipped studio close to the downtown business district.

A block long is the studio building itself, stretching from Walton Place to Oak Street. As one approaches, he receives an impression not of size, but of solid compactness. Three stories high, the building front sparkles in grey and bright blue. Flower boxes decorate the wide verandas that squat on either side of the broad, enclosed staircase leading up to the reception room.

Once inside, the visitor notes that large, high-walled, daylight offices reach back on either side from the verandas. The one on the right is that of Mrs. A. G. Dunlap, President. “Elegantly appointed” seems the only phrase which adequately describes it. On the left the office belongs to Frank Balkin, jovial sales manager, who will conduct our tour from here on.

A passageway leads to a combination conference and waiting room. Indirect lighting fixtures, high above the low-slung conference table and easy chairs, shed a soft light upon a shimmering Bird of Paradise, framed on one wall. Alongside, an ornate fireplace proudly bears a colorful floral display.

To the west, the conference room opens off into the editorial and scenario department. In size and layout, this office is like the others, and the visitor lingers but a moment. Leaving, he has a vague impression of disheveled desks, magazines, and books, books, books.

To the north, a thick, sound-proofed door, framed in red plush drapes, leads from the conference room into the “Little Theatre.” So far, the visitor has seen only the business offices. Now, however, he receives his first real surprise.

The “Little Theatre” is one of the few acoustically treated private projection rooms in Chicago. It is ideal for all types of film showings, for off-screen voice recordings, and—if need be—for actual use as a production sound stage. At first glance, though, little of all this is apparent. All wiring is concealed, speakers and signal lights lie hidden under the screen, and even the microphones are invisible in their special receptacles.

At the rear and above, the projection booth is completely equipped for showings of 35 mm. and 16 mm. sound or silent motion pictures, and for sound or silent

slide films. Two-thirds of the elevated space comprises the projection booth; the other third is a wide window through which we see one end of the sound-control room. During recordings, each of these three rooms is closed off from the other two by sound-proof walls. Communication between the narrator, projectionist, and sound engineer is effected only with a three-color-light signal system. This makes for perfect sound reproductions.

But so much for the “Little Theatre”; now for the sound stage itself (the one feature of this building that merited the ungrudging admiration of Verne Blakely—staid, soft-spoken head cameraman).

As the heavy, sound-proofed door swings open, the visitor utters a gasp of astonishment on seeing a room that actually looks larger inside than the whole building did outside. Ninety-five feet long, by fifty feet wide, by twenty-six feet high are the dimensions of this giant, single sound stage. Ample room there is for SIX full-sized production sets to be in use on the stage at one time.

Floor, walls, and ceiling are acoustically treated throughout by Johns-Manville, who boast that this is one of their most perfect installations. (The frequency with which New York and Hollywood theatrical producers have been using the stage of late testifies well to this boast.)

The stage proper is air-conditioned, with a complete change of air every four minutes. Though situated in a D.C. district, facilities have been provided for both direct and alternating current. The power line is heavy enough for maximum requirements on production in a studio of this size.

While his fascinated eyes follow the bewildering bluster and swirl of a production crew at work, the visitor is led to the rear of the sound stage where a double-doored driveway opens directly onto Oak Street. This “double-door” feature (with a six foot cushion of air between) is but another sound-proofing precaution. The driveway is large (12x12) to permit the easy passage of large trucks, buses, and farm implements that production work at times demands.

Back across the stage, now, the visitor cautiously steps his way . . . past cameras, Kleig lights, sound booms, sets, technicians, and No Smoking signs. At the rear again, he notices for the first time the elevated sound control rooms which overlook the entire sound stage. Mr. D. W. Scott is the ruler here, and he it is who best explains the sound recording setup.

The control rooms contain new R.C.A. ultra-violet sound equipment throughout . . . the same equipment that is today rapidly replacing former instruments in major Hollywood studios. To quote Mr. Scott, “the very last word” in sound equipment. Facilities provide for four microphones, special mixing panels (i.e. tone and volume controls), and re-recording attachments. A unique library of stock-records, both music and sound effects, rests in the corner next to the “dubbing tables,” which are used for adding music or sound effects to film.

A division of the sound department embraces the new sound truck, used for transporting the sound equipment to outside location recordings. Built by International

Harvester Company according to Chicago Film's own specifications, the truck has attracted widespread attention because of its unusual design. Many sound technicians class it as one of the finest of its kind.

Before leaving the sound stage, the visitor takes one last long look. Well does he understand Mr. Balkin's pardonable boast: "This stage permits an operating scope that well-nigh rivals Hollywood."

But we must be getting on, so downstairs the path leads to the work shops. First are the prop store rooms, where odd pieces of furniture, wall sections, and papier-mache fittings abound. Next are the carpenter shops, extremely busy before each production job begins.

At the front of the building are the cast dressing rooms, and a special make-up room. Here, too, is a large lounge room, containing (of all things) an electric refrigerator, built into the wall. No cast members have as yet taken advantage of this happy circumstance, but production crews were quick to learn. On those scorching days more conferences were held in the lounge room than would be necessary for a "Birth of a Nation" production!

Upstairs in the offices again, the visitor learns that what he has seen is not all of the company. Film developing laboratories remain at 1322 Belmont Avenue, and they, too, contain much new, modern equipment. Special sound and picture printers have recently been installed. New type developing instruments and a developing machine have been added.

Progress has brought about many additions to crew and staff. Mr. V. I. Lindberg, long a well-known figure in commercial production, was appointed Production Director. The slide film department facilities have been greatly increased. The production crew as a whole has been practically doubled in the past ten months. The editorial and scenario department, under the direction of J. J. Kielty, has been enlarged, and the sales force added to.

Under the capable leadership of Mrs. A. G. Dunlap, in a few short years Chicago Film has grown from a small laboratory to a major producer. It is still growing, but now it is the seasoning growth of an experienced adult in the commercial production field!

WONDERLITE DUFAYCOLOR LAMPS

T. THORNE BAKER

Director, Research Laboratory

THESE lamps enable natural color photographs to be taken in any studio or home by incandescent light, with DUFAYCOLOR film used in any camera without any filter on the lens. These lamps are of the photo-flood type, giving a very high amount of illumination for the current used, and it is claimed they have the long life of six hours. Spectroscopic tests made in the DUFAYCOLOR Research Laboratory have shown that the spectral energy distribution of the lamps remains constant throughout the life of the lamp; in other words the color rendition should be faithful during the entire useful life of the lamps.

The glass of which the DUFAYCOLOR Wonderlite lamps are made is specially colored to give the same filtering effect as our standard 1A filter.

In using a Weston, or other photo-electric meter, it must be noted that a difference in the reading will have to be made for the following simple reason. Where a filter (such as the DUFAYCOLOR 1A) is used on the lens of the camera, the Weston meter "sees" the white

light of the photoflood lamps as it is reflected from the subject being photographed. But when taking a picture with DUFAYCOLOR Wonderlite lamps, the light of which is deep blue, the Weston meter "sees" merely this blue light reflected from the subject.

The effect of the blue light on the meter is only about ONE-FOURTH the effect of white light on it. Hence the Weston factor must be multiplied by 4. Thus, the Weston speed of DUFAYCOLOR film used in photoflood light being 3, it must be taken as four times 3, or 12, when estimating the exposure in the blue light of Wonderlite lamps. This will automatically correct the very low response of the Weston meter obtained in blue light.

LAST MINUTE FLASH!

BROTHER Jack Flanagan of Cleveland, Ohio, is in a serious condition with concussion of the brain which happened September 28th at Bonneville Salt Flats, Utah, where he was making a picture for Firestone.

Jack was shooting from the top of a car, he was running at low speed, but while travelling the car passed under a wire. The wire caught him in the back of his neck and he hit his head against the camera.

Brother Harry Birch tried to see him last Saturday, but inasmuch as Jack was still unconscious they would not permit visitors. We are all pulling for you, "Jack Old Boy," hope you recover soon.

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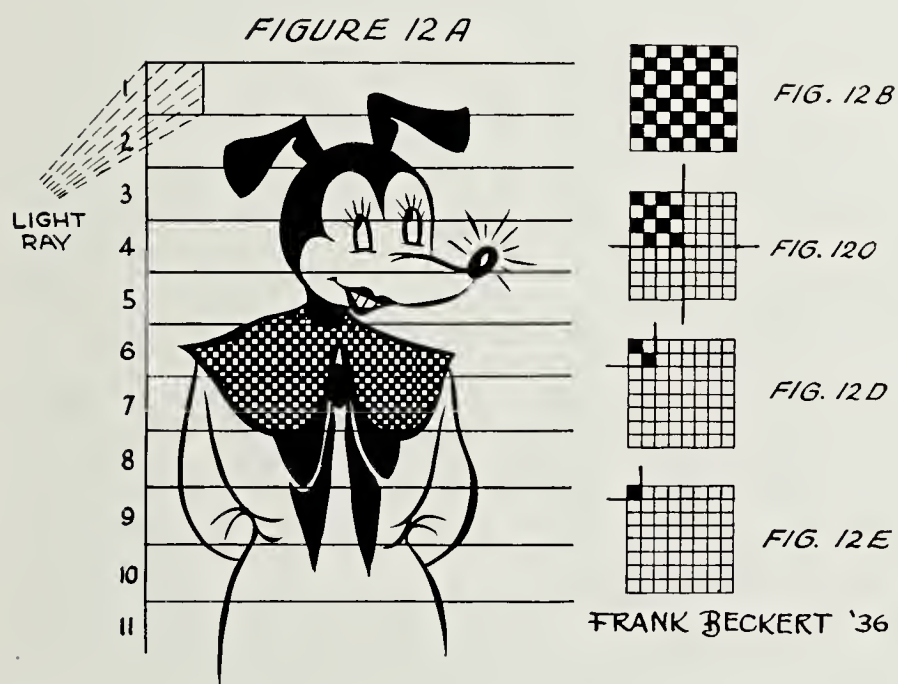
THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Section XII—The Transmission of Detail of the Image

The size of the spot of light which sweeps across the picture has much to do with the detail of the image received at the distant point. In Figures 1A, 2A and 12A a spot of light of considerable size was used to scan the picture. What happens when such a spot is used?

Figure 12A is a portion of a picture to be transmitted. It is divided into the customary group of strips, each made up of 25 square sections of the size illustrated in the upper left-hand corner of the figure. It is assumed that the spot of light striking the image is of the same size as one of these squares.



As the beam sweeps across the picture on the first strip, there is a maximum amount of light reflected from the image. On the second strip the only dark sections are in the ears and top of the head of the figure illustrated, and being black, these will be transmitted as a minimum amount of light. Difficulty arises, however, with the transmission of the checkerboard section of the figure's collar.

A section of Line 6, of the size of the previously-considered spot of light, is lifted out for illustration. This, in enlarged form, appears as Figure 12B and is composed of a number of small black squares and an equal number

of white squares. When a beam shines on this section it reflects light from it into the photo-electric cell. But the current in the anode circuit is not what might be expected from an entire white square, or from an entire black square. The quantity of current is a middling amount, approximating that which might be expected from an intermediate color, namely grey. This, of course, is not a true indication of the actual black and white of which this particular square is composed.

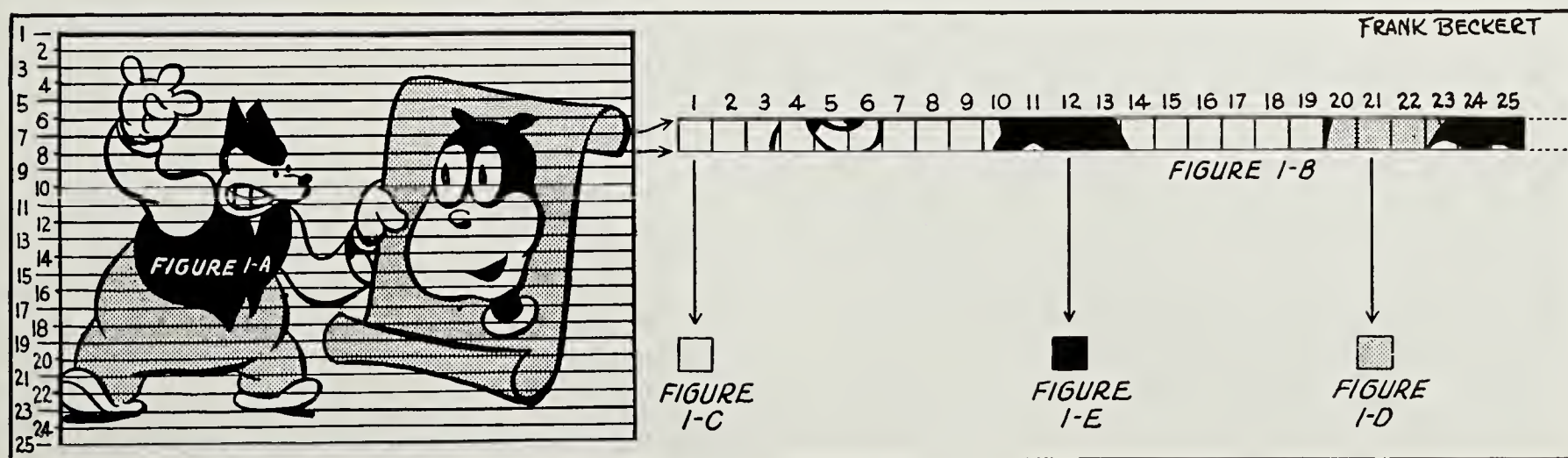
The ray is evidently covering too great a surface, so its size must be reduced. In Figure 12C this has been done and only one-quarter of the previous area is covered. It is evident that as the beam sweeps over this smaller section there is still reflection from equal quantities of black and white areas. This is still unsatisfactory from the standpoint of the photo-electric cell. Reduce the spot size again to one-quarter of the present area as shown in Figure 12D. The beam is now the size of four small squares of the checkerboard collar. But, since two squares are black, and two white, it is still unsatisfactory. The size of the spot must be reduced to that of one of the small squares of the checkerboard, or it will be impossible to reflect a proper amount of light into the photo-electric cell to represent the actual figure. This is shown in detail by Figure 12E.

This reduction of light size brings forth other considerations. The entire picture of Figure 12A was divided into 30 strips, each sectorized into 25 squares, making a total of 750 elements to be scanned. The size of the beam was decreased to one-quarter its original size. This necessitated the light traveling across the picture just twice as many times to scan the entire image since the height of the beam was reduced by one-half. Each strip across covered twice as many squares since the width of the beam was also reduced by one-half. Therefore the total number of elements for the entire picture became 60x50 or 3,000.

This still gave no detail, and the light beam was again reduced until the number of lines was 120 and the squares per strip 100, or a total number of elements in the amount of 12,000. There was still no detail until the square was again quartered, and the final result was 240 lines and 200 squares per line, or a total of 48,000 elements.

The light beam was reduced to 1/64th its original size to reflect suitable amounts of lights and shadows into the photo-electric cell, and this reduction caused an in-

(Turn to Page Thirteen)



Applying the Yardstick in the Making of Motion Pictures

Physical Manufacturing Standards

By Eastman Kodak Company

A PREVIOUS CINEMA DIGEST article referred to the early days when film base was made, and then sensitized on glass-surfaced tables 200 feet long. For something like ten years after George Eastman manufactured the first film, in 1889, that process continued in use.

It is obvious, in these days of thousand-foot reels, that the old table method of manufacture would be impractical; but the machine age of film-making has conferred much greater benefits than the additional lengths possible. The close control of the emulsion-coating process resulting from continuous machine operation has been of major importance in yielding more perfect film.

In other words, control of the conditions, including atmospheric conditions, under which the emulsion is applied to the film base is a positive manufacturing factor making for the uniformity of the finished product.

er temperature and the right degree of moisture content.

The refrigeration plant at Kodak Park is, of course, a major necessity in this super-conditioning of air. It is in-



Ducts for the conditioned air that dries film.



Filter bags eliminate dust from the air that will dry sensitized film.

In the glass-table days, whatever air happened to be in the room was good enough to dry the film regardless of dust or the weather outside — with results in the way of non-uniformity that most of us can remember from the nickelodeon days. Now, instead an elaborate and modern system at Kodak Park admits to the coating machines only air that has been washed, filtered, and brought to exactly the prop-

teresting to know that, for this purpose and other manufacturing purposes requiring cooling, this refrigeration plant in Rochester has sufficient capacity to supply the refrigerators in a million homes.

The reason that temperature is so important in putting the sensitive emulsion on film is this: that only enough heat may be applied to make the drying of the emulsion as rapid as possible—after which cool air must be applied; for the emulsion must not melt after it has been coated and dried.

It will not be surprising, therefore, to know that a machine for coating emulsion on film is equipped with many stations at different parts of the machine for controlling the temperature and the humidity—and the operation of these controls differs for different types of film.

Indeed, the air in this large department where film is sensitized is itself treated like a valuable commodity. Thousands of feet of copper ducts carry the conditioned air where it is needed. Although nothing goes through these ducts but extraordinarily pure air, nevertheless they are frequently taken out of use to be flushed and polished by men in sou'westers, who can go right into the main ducts.

As one more step in this elaborate system of cleaning clean air, filters are used.

The manufacturing routine of this particular large department is touched upon because emulsion coating is

an operation typical of those in which cleanliness and control are most important. A wet emulsion would pick up impurities easily if there were any impurities to pick up. If the rooms where film is sensitized were not kept in nearly total darkness, one could observe that the conditions of cleanliness were such as to shame a hospital or a bakery. A full-time and highly trained cleaning squad keeps the machines spotless even though daylight does not reach them.



The inside of a duct supplying washed, conditioned air to the department that coats sensitive emulsions on film at Kodak Park. . . . Though such ducts carry nothing but purified air, they are frequently taken out of use to be flushed and polished.

Machine-attendants, of course, wear white laundered suits and caps—the purpose of the caps having nothing to do with the popular slang, “It gets in your hair,” but instead being a matter of avoiding any possibility that hair might get into the film.

Consider for a moment the possibility that film, upon testing, should show some slight imperfection; or the more remote possibility that defects should be discovered when the film has been shipped for use.

One building at Kodak Park is composed of vaults, their walls lined with racks holding chests that look very much like a pirate’s treasure boxes. They contain treasure indeed, for each chest holds a large roll of finished film. The film is several feet wide, for it has not yet been slit into motion-picture widths.

On each of these chests there is a record of every operator who has worked on the film from the beginning—far back beyond the stage when the emulsion was put on. This record serves as a check on the manufacturing operations. If testing—or use—should show any flaws, it is possible to follow the manufacturing history of any roll of film right back to the beginning. Special investigators

trace any defects that may be found. Kodak Park doesn’t expect any defects to get beyond the final inspections—but, if any of the billions of feet are imperfect, the plant is equipped to find out why.

Leaving out of consideration the history of how the 35-millimeter standard was set, we shall find by inquiry that cutting the film to the prescribed dimension was once a major problem—until it was solved! Like a thousand other details in making film, which is probably the most delicate product manufactured on a huge modern scale, the problem of exact-width slitting was solved, and became just one more factor in justifying the adage that “trifles make perfection.”

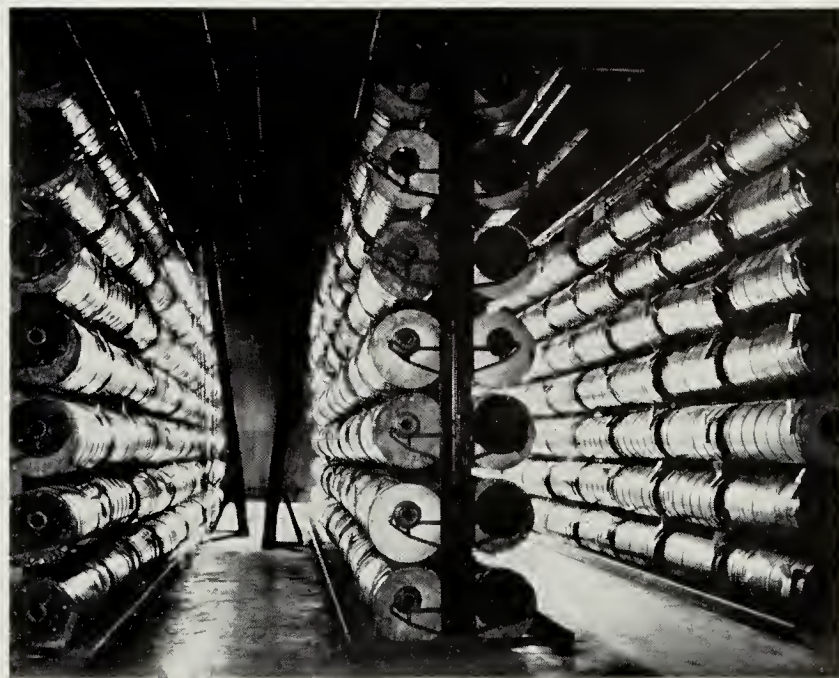
How this particular problem *was* solved suggests a visit to another interesting department of Kodak Park, with its eighty buildings and 400 acres. Slitting machines sufficiently precise could not be bought, so they had to be made.

Film-making was a mechanical art as soon as it was a chemical art. Mechanical ingenuity, plus a very large and elaborate engineering and construction department employing hundreds of extraordinarily skilled mechanical craftsmen, turns out special film-making machinery on a scale commensurate with the mighty mileage of film put forth.

Micrometrically accurate slitting machines are only one of the types of equipment made by this engineering department which loses its identity in the necessary general perfection of the raw material for the motion-picture industry. The phenomenon of a highly developed mechanical business buried within a chemical industry is matched by the strange realization that many of the resulting machines perform their operation in darkness.

Perforations along the edges of motion-picture film are only perforations to the cameramen who use the product; but, to the mechanical minds and hands employed in making perforating machines that will clip, clip, clip, clip, in the dark, putting perfectly accurate perforations on thousands of film miles, the modern apparatus represents many years of patient improvement.

It is of such detailed care—of which one can safely estimate 97 per cent even of the technical readers of CINEMA DIGEST never have heard—that film-making is made.



Rolls of film base in storage prior to receiving the sensitive coating. . . . Chests of finished film, before slitting (as referred to in the text), are stored in somewhat similar rooms.

RALPH BIDDY KILLED IN AIR CRASH

WE were looking forms for Cinema Digest. The phone rings and a voice at the other end asks, "Did you hear about Ralph Biddy?" "No" was the reply "Well, Biddy has just been killed" was the tearful answer.



Ralph Biddy

"What—how and where did it happen" we asked. "Well, here's the story." "Biddy was going to make a 'shot' from the air speeding alongside of the Burlington Zephyr while the streamlined train was leaving Chicago. Swooping down on the train the plane suddenly was caught in the whirling currents and dashed to the ground along the Burlington tracks in Du Page County near Chicago. Fire enveloped the plane, and those aboard were burned beyond recognition.

The Dead:

Miss Wilma Schuesler, 24, beauty and former model, a script writer for Wilding Picture Productions, Inc., 1345 Argyle St., Commercial Photographers.

Howard Adams, 27, Film director for Wilding Pictures, a former actor who had played with Tallulah Bankhead, and a former radio announcer.

Ralph Biddy, cameraman for Wilding Picture Productions, a veteran Motion Picture Cameraman and Newsreel man and member of Local 666, I. A. T. S. E.

Oscar Hanold, 28, Chief pilot of the Blue Bird Air Service.

Fate played a part in the young woman's death. It was her first flight, and when she went to the airport she did not intend to go up. At the last minute, she changed her mind, and James Sedivy, 24, an assistant cameraman member of Local 666, gave up his place to her.

The party took off shortly before 5 p. m. September 29th. The plane was next seen circling over the Burlington tracks near Naperville Country Club, apparently awaiting the Zephyr, which was due at that point about 5:20 on its run to Minneapolis.

As the speeding train headed into a curve at the northern boundary of the country club the plane began a dive past the Zephyr on the north side. The pilot's dive took him to a low altitude. Some said he was less than fifty feet up when he swept past the Zephyr, made a steep bank, swung around in front of the train, and started eastward along its south side.

Another witness said "As the plane came back level with the train it wobbled violently and then seemed to do a loop the loop. It hit the ground with the motor full on at the bottom of the loop. We figured the suction of the air around the train must have caused it."

This Crew had been working on another picture and Biddy, the cameraman, was assigned to get this "shot" on his return to the studio. Biddy was the only one assigned to the ship, the others in the party accompanied Biddy for the ride.

In Memoriam

"To bury him was such a kindness! It was so much in accordance with the wisdom of life, which consists of putting out of sight all the reminders of our folly, of our weakness, of our mortality; all that makes against our efficiency—the memory of our failures, the hints of our undying fears, the bodies of our dead friends.

—Joseph Conrad's
LORD JIM.

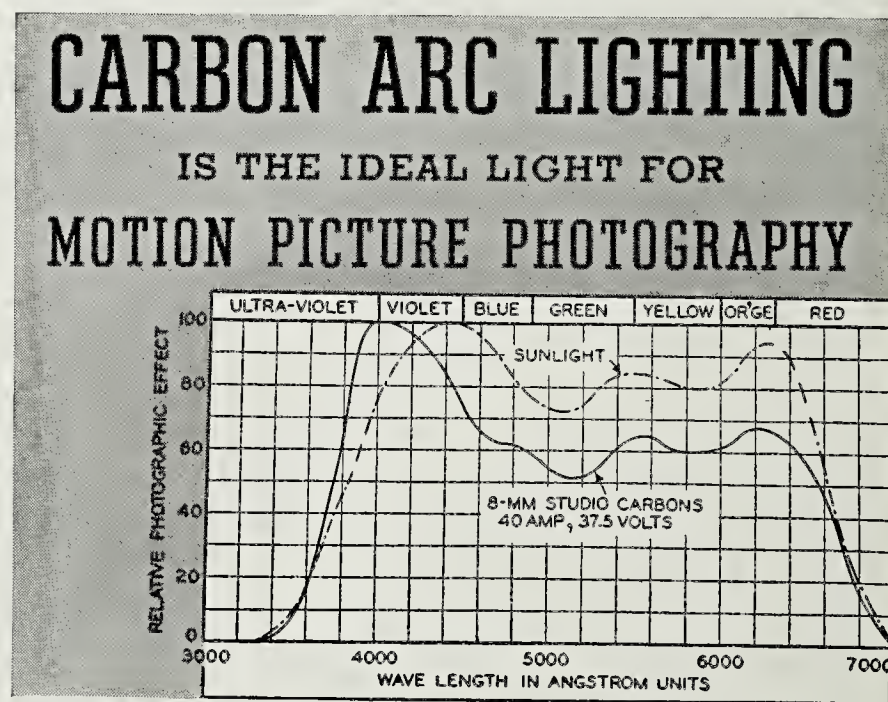
In utilizing the foregoing quotation from Conrad I have taken the liberty of using the first person in place of the third as Conrad told the story of a fine soul who embarked on the sea of life seeking adventure. The story of "Lord Jim," in my opinion, graphically portrays not only the life of all of us but, if we choose, all of the circumstances contained in this story can be applied to any individual.

Ralph Lembeck—knowing him as I did, feared his God as all fine men do. He strove, with all his strength, to do his best in any work to which he bent himself. He loved life and he respected all with whom he came in contact. This, I do know, and to go further is beyond my present power of expression.

So, Ralph, I feel certain that now, as always, you will tell us;

"I AM HERE . . . STILL HERE!"

Bob Butler.



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Those We Will Miss

Ralph M. Lembeck

BROTHER RALPH M. LEMBECK was born in Jersey City, New Jersey, February 13th, 1894. He was educated in the public schools of that city. He first became known in the motion picture business when he was engaged as a cameraman by David Horsley of Bayonne, New Jersey, and his first picture was titled "Dumb Girl of Portici."

The company sent him to the West Coast where he worked in several old time successes with Francis Ford, such as the serial "The Broken Coin" and "The Iron Claw." About 1920 he went to Chicago, where he worked for Rothacker Film Company and Pathe News. He then went to Akron, Ohio, in charge of the Movie Department of Goodyear Tire and Rubber Company. It was there that he lost the sight of one eye in a film fire. For the last six or seven years Brother Lembeck worked for Universal Newsreel and among the many spectacular stories he covered was the "Shenandoah Disaster," the "Ohio State Prison Fire," and the "Ohio River Floods."

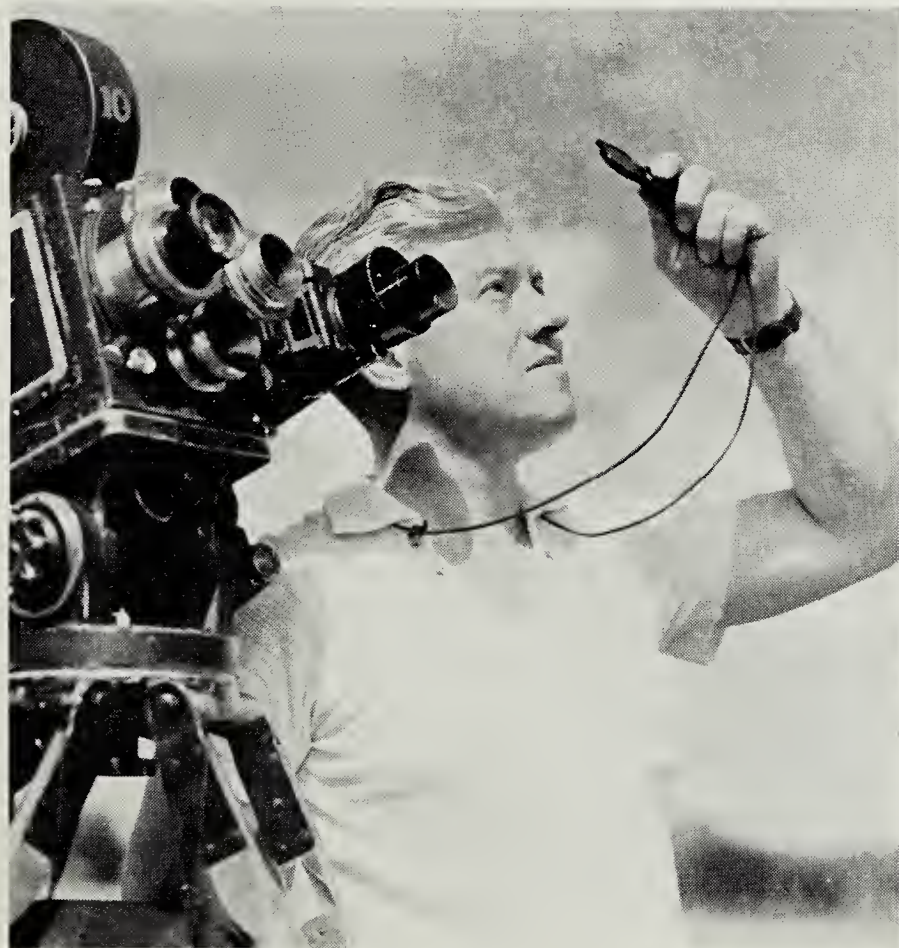
He is survived by a wife and son Jack and will be missed by a great number of friends.



Ralph Biddy

BORN in Indianapolis, Indiana in 1900. In 1917 Biddy became an operator of the old hand crank projector, but soon became fascinated to the photographic branch of the business. In 1920 he was on a camera doing freelance work and in 1927 was staffman for Paramount News. Shortly after he entered the commercial business with his own organization under the banner of "Ralph Biddy Productions." Biddy was one of the first cameramen to join Local 666, being initiated in 1929. In 1930 he became attached to Wilding Picture Productions of Detroit, Michigan and was chief of their camera department until his death. Ralph Biddy, 36 years old was the beloved husband of Marie, and father of Ralph, Jr. age 3 and Suzanne, age six months.

The membership of Local 666 and Editorial Staff of Cinema Digest will miss Ralph and to his family we express our heartfelt sympathy.



BUSINESS FILMING

By MERVIN W. LA RUE, I. A. 666

IN each of our monthly articles we have tried to illustrate how the motion picture can be used to the benefit and profit of modern business. We explained, some months ago, that each film had to be sold before we, as cameramen, could hope to profit—that before we could secure an assignment, someone had to create an idea and sell that idea to a manufacturer.

While few of us are salesmen, or have any idea of engaging in such a profession, nevertheless we should know the purpose of the film, for many times we can apply our knowledge to the profit of the organization using the film.

Our work is interesting to us, and I am sure that the majority of us would not engage in any other profession, unless we had to do so. To progress in our craft, however, we must apply the same methods that modern business has adopted. By study and research we must develop new products and methods, new markets and new applications of our product—the motion picture.

The men who are creating and selling motion pictures to industry are comparable to the men working in the research laboratories of modern business. They are developing new uses for motion pictures and thus creating more work for our members.

We all have our problems, and the man selling the product of our lenses is certainly no exception.

As most of you know, the writer has spent a great deal of his time on the selling side of the fence. To illustrate our point, it might be in order to tell you of an experience which happened to him some time ago. It sounds funny now, but you may be sure that the writer could not see the funny side at the time.

We received an inquiry from a manufacturer in a small Iowa town, and after corresponding with him it developed that he really was interested in having a film made for dealer and jobber work. He stated that he was particularly interested in learning how practical 16mm. talking picture equipment really was and how other firms were using talking pictures in the sales work. Well, we certainly determined to go down to see him and give him the works. We decided to show him, in his own office, just how the idea worked, by presenting some of the best films we had made up to that time, thus demonstrating in a practical manner that the idea was novel, up to date, workable and sound.

The units then available operated only on 60 cycle alternating current, or on direct current if a suitable converter was used. We went prepared for both.

Shortly after our arrival we proceeded to do our stuff in the approved manner, having first been told that they had alternating current. Much to our surprise, the outfit refused to make any noise what-so-ever. We did manage to get a sort of gasping whisper out of it, but it was quickly evident that something was decidedly out of

focus, and we were a long way from home and a 666 sound man. We checked and double checked, changed tubes and exciter lamps, but no encouragement. Finally the plant electrician looked in upon us and after shifting his tobacco to the other side of his month, quietly remarked, "Maybe she don't work so good on 25 cycle."

Yes, that was the trouble. The whole town was on 25 cycle, alternating current and we had never thought of that—so what to do?

We called the utility company and asked if there was any place in town where they had 60 cycle or direct current. We were told there certainly was no 60 cycle nearer than a hundred miles and the only direct current was at the jail, on the top of the hill, just out of town.

We located a man who knew the warden, and after visiting the warden, and talking our situation over with him, we were granted permission to set up in the assembly hall. We were given passes and a guide who conducted us through many gates to the assembly hall where we again set up our equipment. After again working our way through the gates, back to the warden's office, we called our prospective ? customer and the Advertising Manager said he would get the President and some others, and be right out.

When we returned to the assembly hall we found the equipment surrounded by a group of prisoners and several guards. We were asked if they could stay and see the show as they were "trusties" and would not be in the way. Of course we agreed.

Well, everything worked, and in due course our prospective customers arrived. Being good fellows, they seemed to enjoy the experience of being locked up. At least they could not very well get away from us until we had completed our demonstration.

We were introduced to the President of the company and a moment later one of the group called the writer aside and suggested that we seat the gentleman as near the screen as possible as he did not see very well. This was easily arranged. The show went on.

Shortly after the lead title and the opening fanfare had passed through the projector, the same gentleman whispered again and asked that we step up the sound for the President did not hear very well—in fact, it developed that he was quite deaf.

Well, that just about finished us and if a prison riot had developed at about that time it would have certainly ended a perfect day.

Fortunately, the other executives were quite impressed with the demonstration and thought the whole incident a lark. They explained that they understood the situation was an isolated one as they had trouble getting motors and other electrical equipment when needed. We managed quite well as *they* sold the President—not us.

We are quite certain, however, that in making a successful ? demonstration to a prospect in prison, who was deaf and who could not see so well, we established a record for something or other—or did we?

FILMACK UP'S PAY

IN keeping with their policy of increasing wages of their workers whenever profits of the firm increased, Filmack Trailer Company gave all their employees increases in salary last week ranging from 10 to 15 per cent. This marks the second boost in pay in 1936 for Filmack employees as a raise in salary was given them earlier in the year.

At the same time, Irving Mack, president of Filmack, announced that the firm's business the first eight months this year is far ahead of the same period in 1935, and indications are that 1936 will be the best year in the company's history.

Mr. Mack attributes this increase in sales to the fact that exhibitors are becoming more exploitation conscious and are doing more advertising on the screen than ever before.

ELEMENTS OF TELEVISION

(Continued from Page Seven)

crease in the number of units from 750 to 48,000 per picture.

If a picture involves detail, it must be divided into many minute parts as shown. Without this segmentation, the proper individual amounts of reflection and the consequent changes in anode current in the photo-electric cell cannot be achieved. If the separations are too large, blacks and whites will intermingle to form greys with resultant confusion and poor transmission.

This discussion of detail introduces a new term—LINE FREQUENCY. TIME is an important part of this, since it consists of "the lines per picture multiplied by the number of pictures PER SECOND."

If a picture is divided into 30 lines and run at the rate of 24 pictures per second, the LINE FREQUENCY is 30×24 or 720. By increasing the lines to 240 (and this is done in more advanced systems to be discussed later) the LINE FREQUENCY is 240×24 or 5,760.

Another important unit is the ELEMENT of which some mention has been made. ELEMENTS (or ELEMENTARY AREAS) are the minute portions into which a single picture is divided.

The number of elements may be defined as the ratio of the spot area to the whole area scanned. This may be put in the form of a simple equation, thus:

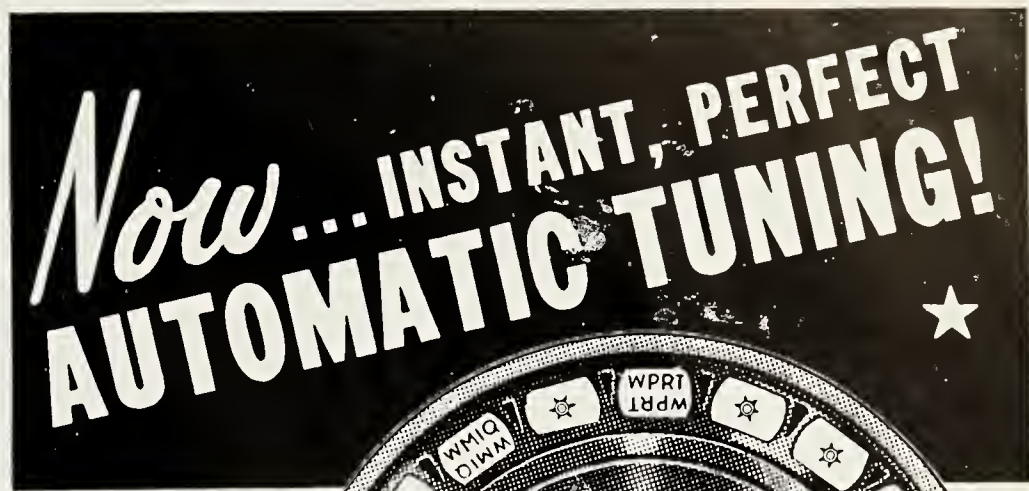
$$n = \frac{L}{d}$$

where n = the number of elements per picture.

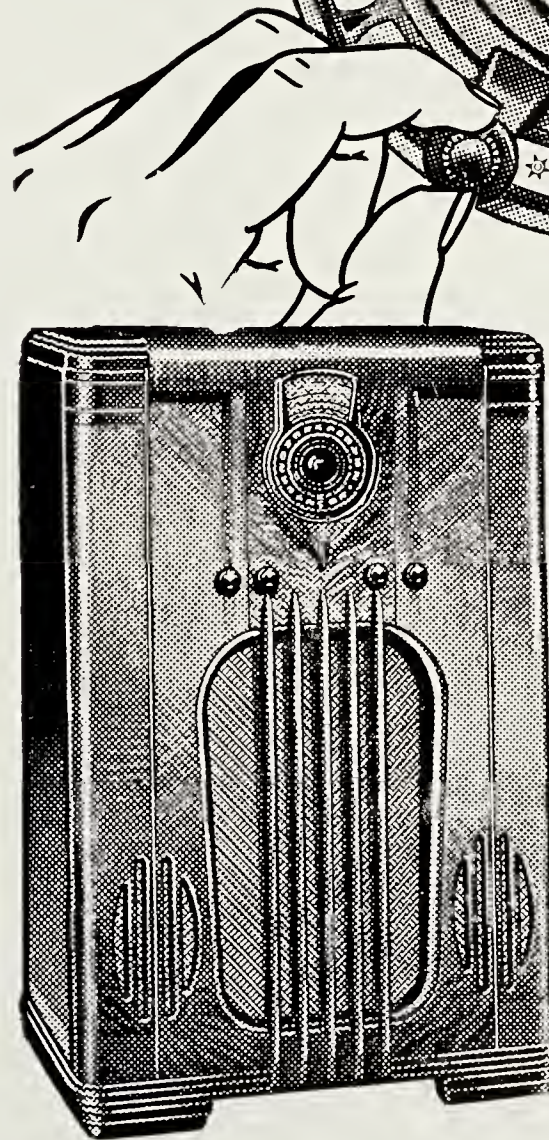
L = the total distance traveled by the scanning spot in one complete scan of the picture or scene. (This distance is, of course, equal to the number of lines per picture multiplied by the length of each line.)

and d = the width of the scanning spot or elemental area.

A complete knowledge of the significance of these two terms is absolutely essential to a proper understanding of television. So important are they, that an entire section will be devoted to them, when the discussion will consider the various frequencies involved in television and their transmission by radio means.



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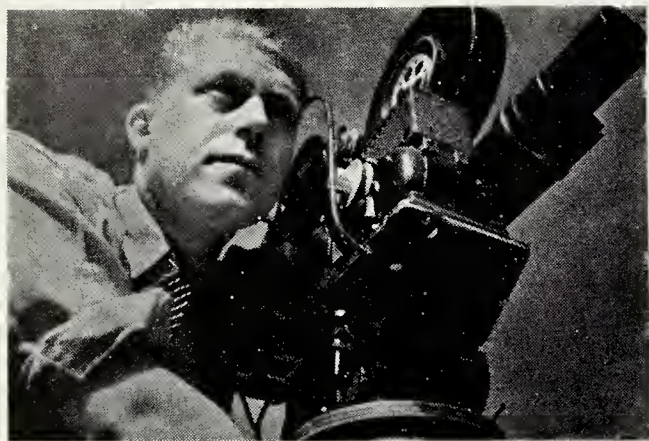
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Phone Bittersweet 4030

Chicago, Ill.

Cinemabiography

LIFE really began at age of ten with first paper route. Was having great difficulty mastering grammar school education. Finally got two night paper routes and one early morning paper route. Have hated getting up early ever since. Since paper routes were through a semi-long-shoremen, semi-redlight district in Milwaukee, decided that I was getting a much better and effortless education peddling papers than at school; so passed up finishing grammar school education.



Moved to Chicago at age of 14 and decided was going to be a movie actor but father decided wanted to make mechanical engineer out of the problem child. Beat this rap by getting job pronto in printing establishment specializing in post cards. Stole post cards, bought post card projector and showed postcards to family made up as regular movie travelogues. Knew then wanted to be in the movie swim. Finally got caught stealing postcards, and decided right time enter movie industry. Did so, with Rothacker Film Company. Liked the racket and decided this was my spot. Worked under "Simon Legree" superintendent, named George Gibson, in the laboratory at age of 15, after lying was sixteen. Spent time, when boss was not watching on catwalk in Rothacker studio, watching activities of a big-shot director named Edwin Blackburn, and decided job must be pushover, and nominated myself for director job. Being too young, joined amateur "little-theatre" movement in spare time; playing with such eminent amateur thespians as Mike Rotunna and O. P. Lip-pert; but tiring of butler parts with the line, "Madame, the car awaits without!" washed this idea out, and in spare time working in the Rothacker lab, tried to figure out a new easy racket. So after watching efforts of a group of distinguished gents, named Verne Blakeley, Charlie Geis, Bill and Oscar Ahbe and William Strafford blame lousy exposures on the negative developer, who I racked for, I decided I was going to be a "cinematographer." Bought a cheap movie camera from Charlie Bass with the first eighty-five bucks I saved in my life (incidentally the only saving ever did) and my father hired a lawyer to make sure Bass would take the camera back as he did not want his son squandering his money on such a silly business. So got on good side of Verne Blakeley and Bill Strafford to get dope on how to be a cameraman. Decided there was no future for me in their racket, as you had to be a high class photographer and a hard worker to be an industrial cameraman, so decided was going to be a newsreel man, like the guys—Norm Alley—Bob Hollohan—Harry Birch—and Chapman, that I was reading about in the newspapers. Investigated their racket very thoroughly and decided this was easiest way of making living, so lied my way into Pathe News. First efforts on newsreel coverage,

not spectacular but alibing proved easy, so knew I had arrived. From here on, earning pay check became push-over, so branched out, joined Paramount News and found myself again devoting spare time to amateur theatricals as figured acting was still easiest, since Akeley cameras were just coming into use and were a little too hard on back. Got nowhere on acting so stuck and mastered Akeley juggling, and decided the worthwhile things in life were hanging on a bar, knocking the suckers that were married, and hating babies. Sitting at bars became tire-some, so ran across the old Rothacker switchboard operator whom I used to buy apples for and decided she still was the swellest kid, so started to court her. After seven years of courtship got tired of that and married the gal. Then came a bundle of happiness called Rita Joyce, so gave up saloons and knocking married life. Now have hobby of spending all spare time playing with Rita Joyce and trying a hand at writing. Newsreel work is becoming harder, with heavy sound cameras, so want to be an actor again but wife says I am too fat and ugly, and the baby has to eat. So juggle a sound outfit and battle with a noisemaker named Wayman Robertson for Paramount News—for Rita Joyce's sake. Regret nothing and would do it all over again if only for the laughs.

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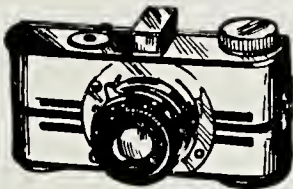
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Excellent condition. Original cost, \$435.00. Will sell complete
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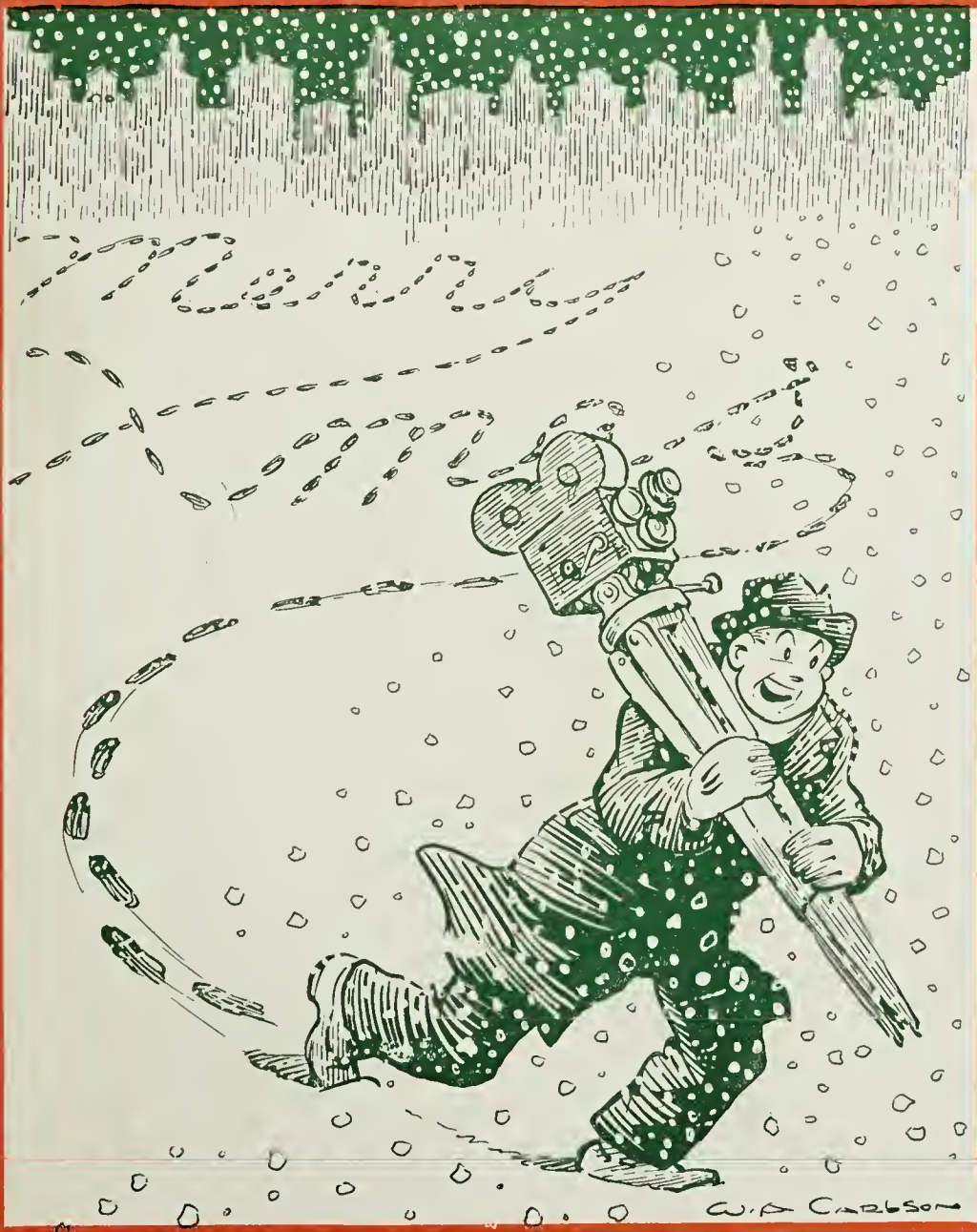
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NOV., DEC., 1936

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CHICAGO, ILLINOIS

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LOCAL 666

By W. H. S.

THE members of Local 666 mourn the passing from this life of three Brother members, Ralph Lembeck, Ralph Biddy and Jack Flanagan, all of them members of this organization since its inception, all cases were tragic in the manner of their deaths, but, in each case personal suffering was eliminated as the call was sudden. We sympathize deeply and sincerely with the families of these fine men, two of whom were killed in line of duty and the other by a heart that failed.

The Business Manager of Local 666 took a swing around the southwest where he visited many cameramen, studios and laboratories, renewing acquaintances with old friends and meeting many new ones, he reports that business in the industrial film field is on the up-grade climb. He covered eleven states and almost 4,000 miles in four and one-half weeks.

Great alarm was manifested over the safety of Brother Harry Birch, who met with a serious accident while photographing scenes of automobile road tests in California when a car traveling at a high rate of speed crashed into the rear of his car. Both cars were demolished with Birch the only one seriously injured, he was taken to the Santa Monica Hospital only after the physical persuasion of two highway policemen and two ambulance attendants who used force to drag him away from the scene where he directed the gathering up of the camera equipment scattered around the wreckage and saw it safely consigned to place of storage. Harry is now back in Chicago with a broken leg, injured back and chest and sewn up cuts on head and legs. He'll be on the firing line again in a couple of months.

Nominations for officers of the Board of Executives for the two-year period 1937-1938 will be held at a Special Meeting of the Membership at the headquarters of the Local on Monday, December 14th, 1936, at 8 o'clock p. m.

As we go to press with this last issue of Cinema Digest for 1936 we are mindful of the splendid co-operation and support of our magazine by our advertisers, contributors and subscribers to whom we express our grateful thanks and best wishes for a Merry Christmas and a successful and prosperous 1937.

THE RADIO

By J. ROY HESS

My radio gives me much pleasure

When it doesn't sputter and hiss,

Sometimes when expecting sweet music

I fall heir to something like this—

At the end of this program please listen,

To details of our Mammoth Contest,

For over a thousand cash prizes,

To the ones that the Judges think best.

We know you will find it quite simple

For our product is way out ahead,

Just send in three box tops, or covers

Or clear drawn fac-similies instead.

In case of a tie, we've arranged

That duplicate prizes we'll pay,

You don't have to be literary

Just write in your own simple way.

So do not put off till tomorrow,

The chance of a fortune in sight,

Make a purchase today of three cartons,

And mail in your entry tonight.

TO LEARN OUR IMPORTANCE

IS Cinema Digest wanted? Well, that is the question that we have been asking ourselves for the last year. We decided to learn our value and if we were really doing the kind of job that our readers want.

We intentionally omitted the November issue of Cinema Digest to learn if we would be missed. This was rather a bold step to make in upsetting our monthly routine of getting this magazine out and notifying our advertisers of this "skip month."

We learned the very thing that had been bothering us. Were we wanted? Well, it was more than gratifying to read the letters, cards, and yes, telegrams that came into this office asking where Cinema Digest was for November. They came from points far and near. Cinema Digest is very proud of the fact, that we were missed by our readers and it means that Cinema Digest will go forward to bigger and better things, that will be of interest to those of the craft. We thank those readers who called us and wrote us about not receiving the November issue. You did the thing that we hoped would happen. YOU MISSED CINEMA DIGEST.

OLD-AGE BENEFITS OF SOCIAL SECURITY ACT

THE Social Security Board on October 29 issued the following public statement addressed to employees of industrial and business establishments, factories, shops, mines, mills, stores, offices, and other places of business:

"The old-age benefit provisions of the Social Security Act will go into effect on January 1, 1937. To understand your obligations, rights, and benefits under these provisions of the Act you should read the following general explanation.

"There is now a law in this country which will give about 26 million working people something to live on when they are old and have stopped working. This law, which gives other benefits, too, was passed last year by Congress and is called the Social Security Act.

"Under this law the United States Government will send checks every month to retired workers, both men and women, after they have passed their 65th birthday and have met a few simple requirements of the law.

What This Means to You

"This means that if you work in some factory, shop, mine, mill, store, office, or almost any other kind of business or industry, you will be earning benefits that will come to you later on. From the time you are 65 years old, or more, and stop working, you will get a Government check every month of your life, if you have worked some time (one day or more) in each of any 5 years after 1936, and have earned during that time a total of \$2,000 or more.

"The checks will come to you as a right. You will get them regardless of the amount of property or income you may have. They are what the law calls 'Old-Age Benefits' under the Social Security Act. If you prefer to keep on working after you are 65, the monthly checks from the Government will begin coming to you whenever you decide to retire.

The Amount of Your Checks

"How much you will get when you are 65 years old will depend entirely on how much you earn in wages from your industrial or business employment between January 1, 1937, and your 65th birthday. A man or woman who gets good wages and has a steady job most of his or her life can get as much as \$85 a month for life after age 65. The least you can get in monthly benefits, if you come under the law at all, is \$10 a month.

If You Are Now Young

"Suppose you are making \$25 a week and are young enough now to go on working for 40 years. If you make an average of \$25 a week for 52 weeks in each year, your check when you are 65 years old will be \$53 a month for the rest of your life. If you make \$50 a week, you will get \$74.50 a month for the rest of your life after age 65.

If You Are Now Middle-Aged

"But suppose you are about 55 years old now and have 10 years to work before you are 65. Suppose you make only \$15 a week on the average. When you stop work at age 65 you will get a check for \$19 each month for the rest of your life. If you make \$25 a week for 10 years, you will get a little over \$23 a month from the Government as long as you live after your 65th birthday.

If You Should Die Before Age 65

"If you should die before you begin to get your monthly checks, your family will get a payment in cash, amounting to 3½ cents on every dollar of wages you have earned after 1936. If, for example, you should die at age 64, and if you had earned \$25 a week for 10 years before that time, your family would receive \$455. On the other hand, if you have not worked enough to get the regular monthly checks by the time you are 65, you will get a lump sum, or if you should die, your family or estate would get a lump sum. The amount of this, too will be 3½ cents on every dollar of wages you earn after 1936.

Taxes

"The same law that provides these old-age benefits for you and other workers, sets up certain new taxes to be paid to the United States Government. These taxes are collected by the Bureau of Internal Revenue of the U. S. Treasury Department, and inquiries concerning them should be addressed to that bureau. The law also creates an 'Old-Age Reserve Account' in the United States Treasury, and Congress is authorized to put into this reserve account each year enough money to provide for the monthly payments you and other workers are to receive when you are 65.

Your Part of the Tax

"The taxes called for in this law will be paid both by your employer and by you. For the next 3 years you will pay maybe 15 cents a week, maybe 25 cents a week, maybe 30 cents or more, according to what you earn. That is to say, during the next 3 years, beginning January 1, 1937, you will pay 1 cent for every dollar you earn, and at the same time your employer will pay 1 cent for every dollar you earn up to \$3,000 a year. Twenty-six million other workers and their employers will be paying at the same time.

"After the first 3 years—that is to say, beginning in 1940—you will pay, and your employer will pay, 1½ cents for each dollar you earn up to \$3,000 a year. This will be the tax for 3 years, and then, beginning in 1943, you will pay 2 cents, and so will your employer, for every dollar you earn for the next 3 years. After that you and your employer will each pay half a cent more for 3 years, and finally, beginning in 1949, 12 years from now, you and your employer will each pay 3 cents on each dollar you earn, up to \$3,000 a year. That is the most you will ever pay.

Your Employer's Part of the Tax

"The Government will collect both of these taxes from your employer. Your part of the tax will be taken out of your pay. The Government will collect from your employer an equal amount out of his own funds.

"This will go on just the same if you go to work for another employer, so long as you work in a factory, shop, mine, mill, office, store, or other such place of business. (Wages earned in employment as farm workers, domestic workers in private homes, Government workers, and on a few other kinds of jobs are not subject to this tax.)

(Continued on Page Eight)



Greetings . . .



**WE salute our friends the
cameramen and producers
at another year's end . . .
and look forward with
pleasure to coöperating
with them in the future as
in the past.**



J. E. BRULATOUR, INC.

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NEW YORK

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HOLLYWOOD



Applying the Yardstick in the Making of Motion Pictures

Laboratory Practice

By WALTER HOTZ

SINCE the establishment of the Laboratory of Burton Holmes Films, Inc., in 1916, many changes have taken place in the processing of film. These changes resulting in new equipment, new types of film, new methods of processing, and consequently better prints. With the introduction of sound into the motion picture industry came the realization that some form of control of processing was necessary in order to produce a more uniform sound quality. Burton Holmes Films, Inc., was among the first to install a system of sensitometric control.

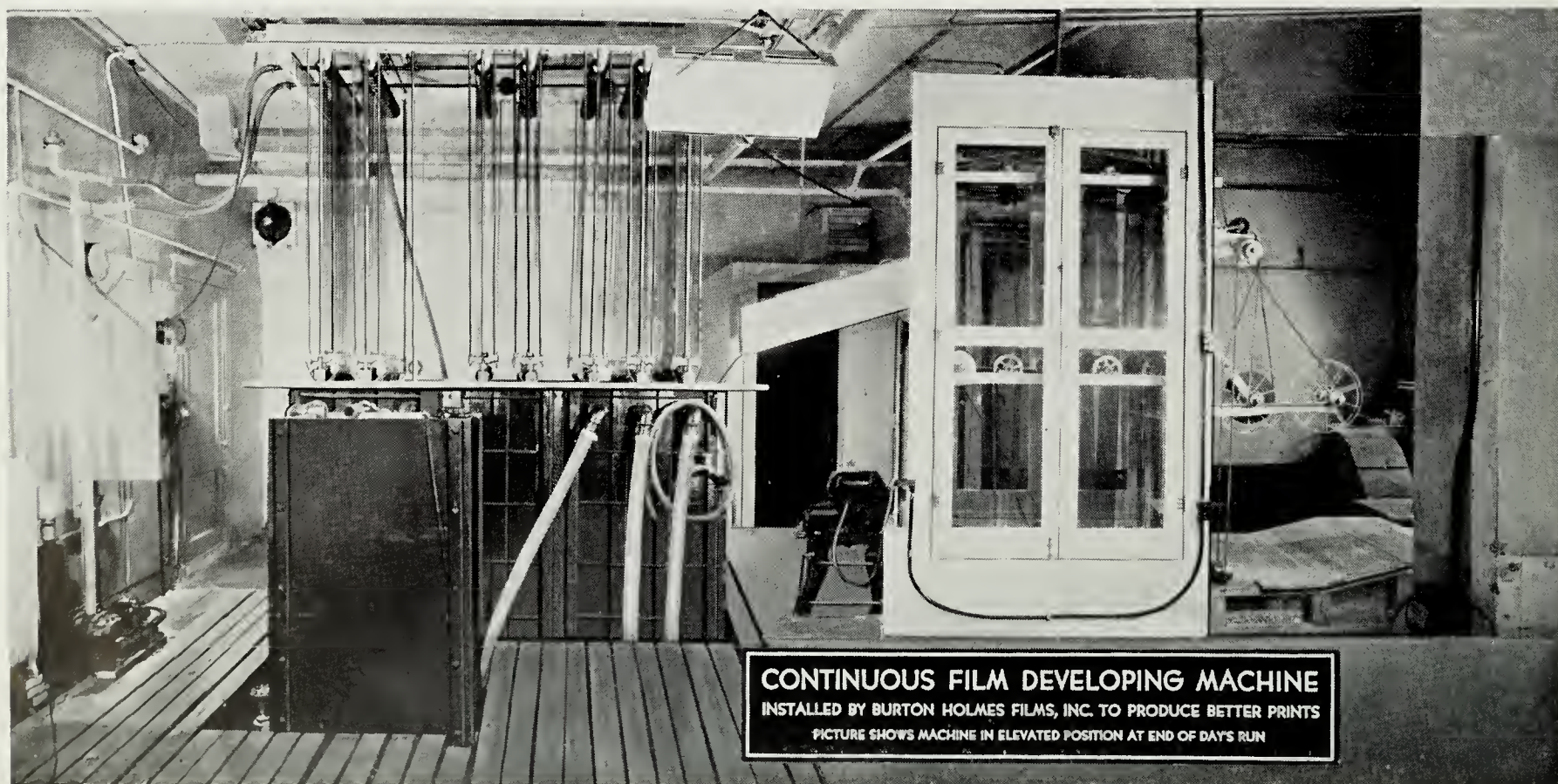
Prior to the installation of the control system, film was received from the cameraman with instructions for processing. Some would send in test strips; other film would reach the laboratory with no instructions whatsoever. In all cases the developing man used his own judgment as to the developing time. This shifting of responsibility for a good negative from the cameraman to the laboratory, needless to say, often resulted in confusion to all concerned. For example, let us assume that the cameraman would light a subject so as to obtain a contrasty effect. In all probability the developing man would use his own judgment and underdevelop the negative to secure a soft negative, thinking the cameraman's exposure was a mistake. Obviously the results would be disappointing. However, with the control system and uniform development, and especially where machine developing is used, the degree of contrast and exposure is left entirely in the cameraman's hands.

With high quality film furnished by the film manufacturers of today, and the sensitometric system applied in developing that film, what does the Burton Holmes Films

cameraman do to assure good results on his part? After preliminary tests are made and developed to check his equipment, he starts on production knowing that all his negative will receive the same treatment as the tests.

At the start of each new roll of film, 10 or 12 feet of film is run into the magazine unexposed, and noted on the camera report. This film is later used by the laboratory for making sensitometric strips. During the day's "takes" whenever a change is made in lighting or a different set is photographed, a test is made, and slated as such, and again this is noted on the camera report. These tests are taken out of the negative as soon as it has been processed and returned to the cameraman with gamma strips and their readings for his inspection and approval. Development is uniform for all scenes as the cameraman can verify from the gamma strips. The scene test is given to the cameraman for his own information so he can check his lighting and exposure. Of course, the intelligent use of the photometer to aid the cameraman in estimating the exposure is most desirable and its worth cannot be overestimated.

The laboratory man upon receiving the negative makes several exposures on the unexposed film of each roll, in a sensitometer. These are the gamma strips which are developed periodically with the negative, and by the use of the densitometer the gamma of each strip is determined. As means are provided to keep the temperature of the developer constant, a rise or fall of the gamma will indicate a rise or fall in the strength of the developer. By adding replenishing solution to the developer at intervals, the strength, and thereby the gamma reading will remain fairly constant; a gamma of .6 is maintained. It will be seen that the sensitometric system has eliminated most of the guesswork in processing and at the same time gives the cameraman a feeling of assurance.



The positive print development is controlled in practically the same manner. After the negative has been tested as to the printer light each scene is to be printed on, the tests are developed to a gamma of 2.00. The prints are then printed and sent through the developing machine. Gamma strips exposed on the same positive film as used in making the prints, are periodically sent through the developing machine with the film, and these strips are read to determine the strength of the developer.



The following is a log kept by a developing crew of an eight hour period in which 28,000 feet of 16 millimeter prints were developed. A gamma strip was developed with every 1,200 feet of film, and the reading recorded.

No.	D	Step 11	Step 7	Gamma
1	.92	.72	1.92	2.00
2	.92	.72	1.92	2.00
3	.90	.72	1.90	1.96
4	.92	.74	1.94	2.00
5	.94	.74	1.96	2.03
6	.92	.72	1.92	2.00
7	.96	.77	1.97	2.00
8	.94	.73	1.95	2.03
9	.94	.78	1.98	2.00
10	.94	.72	1.92	2.00
11	.92	.74	1.94	2.00
12	.94	.76	1.96	2.00
13	.96	.76	1.96	2.00
14	.96	.76	1.96	2.00
15	.94	.74	1.95	2.01
16	.94	.74	1.94	2.00
17	.96	.72	1.92	2.00
18	.94	.74	1.94	2.00
19	.98	.76	1.98	2.03
20	.98	.78	1.99	2.01
21	.96	.74	1.92	1.96
22	.96	.74	1.94	2.00
23	.96	.74	1.94	2.00
24	.94	.72	1.92	2.00

A short cut method of reading the gamma strips was devised in order to make a quick and fairly accurate reading possible. The number of the gamma strip appears in the first column. In the second column are the densities of an exposure placed on the film by running it through a sound printer at a fixed light setting without a negative. Gamma strips are then exposed on this same film. This is done as an added check. The steps of the sensitometer tablet, through which the stock is exposed in making the gamma strips, are numbered from the lighter steps to the darker. Column three and four are the readings of the eleventh and seventh step. These are fairly representative of the straight line portion of a gamma strip. By dividing the difference between these two readings by the difference of density of these same two steps on the sensitometer tablet, which is .60, we obtain the gamma. Note by the readings that there is a change of only .07 in the

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But That Is
My Way of
Saying

*Merry
Christmas
and Happy
New Year!*



gamma throughout the eight hour period. This is holding the gamma to very close limits, but is not unusual, although a change of from .15 to .20 would still give good and uniform prints. That prints of such a day's work were uniform in quality is obvious.

It is, however, only with the cameraman's cooperation, and knowledge of the system, that the results required by the industry today can be fully realized.

Old-Age Benefits Provision of Social Security Act

(Continued from Page Four)

Old-Age Reserve Account

"Meanwhile, the Old-Age Reserve fund in the United States Treasury is drawing interest, and the Government guarantees it will never earn less than 3 per cent. This means that 3 cents will be added to every dollar in the fund each year.

"Maybe your employer has an old-age pension plan for his employees. If so, the Government's old-age benefit plan will not have to interfere with that. The employer can fit his plan into the Government plan.

"What you get from the Government plan will always be more than you have paid in taxes and usually more than you can get for yourself by putting away the same amount of money each week in some other way.

"'Wages' and 'employment' wherever used in the foregoing mean wages and employment as defined in the Social Security Act."

FRAUD

The Social Security Board, through its Acting Chairman, Arthur J. Altmeyer, has branded as a fraud and deliberate fabrication the so-called social security form that was suddenly broadcast a few days before election.

The statement by the Board said: "There is not the slightest particle of truth in statements issued today and in forms circulated today claiming that the Social Security Board will require information concerning church affiliations, labor-union affiliations, personal physical defects, whether a worker is divorced, whether he owns his home, the reason for his discharge from a job if he has been discharged, or other items of an intimate personal nature.

"The Social Security Board has no need for such information. It has no intention of ever seeking such information. It has never had any such intention. In fact, it has no legal authority to do so. Furthermore, the authors of this canard must know that it is a fraud because as far back as January 17 the Social Security Board issued a public statement which was widely published by newspapers and trade journals throughout the country denying the same sort of fraudulent claim made at that time.

"For the administration of the Social Security Act the Board will require only a few simple facts as to the name, age, address, and place of work of the individual. It has absolutely no need for and will not require the information pointed to by the heavy arrows on the fraudulent forms which are being circulated."

Beg Your Pardon "Red"

In the October issue of Cinema Digest appeared the Cinemabiography of Fred Felbinger, Ace Newsreel Cameraman, author of short stories and creator of the column "Snooping the Lens Snoopers." Through our



error no name appeared under the picture. For this mistake we apologize and reprint the picture herewith.

"Shootin' the Sun"

SOME one told us that they had fireworks at the University of Chicago and we thought this a funny time of the year for fireworks. Well, it was not the kind of fireworks that we were thinking of, you know the kind we see on the Fourth of July. No sir, these fireworks were of a new kind. They were motion pictures, that is celestial fireworks, flames that spurt 100,000 miles into the air, off of the sun.

These pictures were shown to famed specialists in the physical and biological sciences that were gathered at the University of Chicago for the Autumn meeting of the National Academy of Sciences.

These pictures were made at the new solar tower of the McMath-Hurlburt Observatory at Lake Angelus, near Pontiac, Michigan, by means of a new camera which obviates the necessity of awaiting a solar eclipse to study the sun's surface.

The pictures of rainbows 150,000 miles long and other heavenly pyrotechnics were made and shown by Drs. Robert R. McMath and Edison Pettit of the University of Michigan.

They were made possible by the spectroheliograph, a new device which spreads the light of the sun into a spectrum and makes it possible to select any wave length of an element for photography.

The instrument enabled the Michigan scientists to eliminate the brilliant sunlight which heretofore had always blotted out solar pictures except at the time of an eclipse.

The solar tower is a telescope in which the telescopic parts remain fixed in a vertical position, with an arrangement of moving mirrors called a coelostat at the top. The coelostat follows the sun in its course across the sky.

The tower is fifty feet high and rises above a concrete well thirty-five feet deep. The spectroheliograph is at the bottom of the well, where the depth in the earth gives protection against changes of position or temperature.

The premiere, with Old Sol exhibited in spectacular form, show great jets of flame on the sun, shooting to heights of a hundred thousand miles.

As the sun appeared in the film, the flames were from 50,000 to 100,000 miles in length, composed mainly of incandescent calcium and hydrogen. All along the tremendous jets were smaller discharges like Roman candles, which spurt to a length of 1,000 miles.

Dr. McMath said:

"This cloud development is a new discovery and may render revision of some theories of the solar prominences necessary.

"The photographs show the surface of the sun to be dotted by low, sharp-pointed flames darting up for a thousand miles or so and then subsiding.

"Sometimes a large area of fire, seeming to cover an extent of 100,000 miles, is blown to one side. We have seen phenomena that resemble a spreading fire in a field of wheat."

On the screen Dr. McMath pointed out sudden volcanoes of fire and gasses, estimated to attain the terrific heat of 10,000 degrees Fahrenheit, rising at intervals from the sun. Because they seemed to twist and turn like whirling dervishes, Dr. McMath referred to some of the great spurts of fire as "tornadoes."

Before falling back again to become part of the sun, some of the tongues of fire formed an arch 50,000 miles in width, which would be capable of wiping out every living thing on the earth. However, there is no possibility of their ever traversing the intervening 93,000,000 miles, said Dr. McMath.

Cinemabiography

FRED L. "WHITY" HAFFERKAMP was born on the North Side of Chicago, December 15, 1893. At the age of fifteen he obtained his first job with the old Selig Polyscope Company at Irving Park and Western Avenue, where he worked in the Laboratory. After a short time he became projectionist, then assistant cameraman and was then made cameraman. He worked there for nine years. The studios were then moved to California.



"Whity" Hafferkamp

His next connection was with the Micheaux Film Company, where he shot feature pictures of colored casts for two years. Leaving there he went to work for Photoplay Company, making two reel Slapstick Comedies, for a period of two years. After leaving Photoplay he joined the camera staff of Atlas Educational Film Company, located in Oak Park, Illinois, where he spent the next thirteen years making Educationals, Industrial Two Reel Dramas and a few Feature Pictures. "Whity" is now working with General Film Company, 1229 South State Street, Chicago, Ill.

HOW COME? ? ? ? ?

Two good I. A. 666 members contributing pictures and stories to the A. S. C. magazine known as American Cinematographer. Is it or is it not one of those weighty problems that we should think about, due to the fact that the picture and story appears under the Amateur Movies section of the November issue of the American Cinematographer, on page 479. Always thought Paramount News was in the professional field. Oh! well, s' funny world.

ZUCKER EXPANDS

Frank Zucker announces that in order to expand his activities in the photographic sales and rental line a new company has been formed under the name of Camera Equipment, Incorporated. Offices and show rooms are located at 1600 Broadway, New York City.

In the show rooms, the largest and most suitable to be found in the heart of the city, are displayed all types and makes of professional cameras, accessories such as blimps, tripods, filters, panoram dollies, film cutting and editing equipment, and portable sound projectors.

Directed by skilled technicians, the service and repair department will specialize in Mitchell, B & H cameras and similar studio maintenance operations.

SAY

YOU SAW
IT IN
CINEMA DIGEST

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until it is a veritable roster of
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LITTLE AMERICA IN THE U. S. A.

By HARRY BIRCH, 666 I. A.

BONNEVILLE SALT FLATS, Utah, 130 miles west of Salt Lake City and 10 miles east of the Nevada-Utah state line. It is America's newest automobile proving ground, where speed and endurance records have really taken many tumbles and have been moved up into new brackets.

Bonneville Salt Flats, when seen for the first time, remind one of pictures we have seen and stories we have read about "Little America" somewhere down around the South Pole. Bonneville is a wide expanse of "snow-white-salt" for many square miles and is surrounded by mountains that rise many feet above the "flats."

Salt! Well, there's enough salt in that there "salt-bed" to feed the world for many, many years to come. Of course, it might be well to explain at this time that this "salt-bed" was originally the "bottoms" of a salt lake of a great many years ago that has since dried up. This "flat" or salt-bed is much like a concrete floor, hard, in fact so hard that one is required to use a pick and shovel to dig the smallest kind of a hole.

Well, it was the writer's privilege and pleasure to witness a test run for speed and endurance by two of America's finest automobiles. We departed from Salt Lake City one bright sunny morning by automobile and headed straight west for Bonneville, 130 miles and a beautiful trip. The State of Utah affords good roads, roads where a constant speed of 60 or 70 miles per hour is really comfortable driving. Within a couple of hours from our starting point we entered onto the salt-flats of Bonneville and what a thrill! As stated above we were doing the usual speed on the highway of 60 miles per hour, but upon entering the "salt-bed" the cars were opened up to a new speed and as I glanced at our speedometer I discovered that we were doing 92 miles per hour.

It seems that the driver of the car in which the writer was riding must have sensed a feeling that his passenger was not at all comfortable traveling at this new speed. He smiled as he turned to me and remarked: "How do you like the new speed?" to which I replied, "Well, it's pretty damn fast, as long as you ask me!" I'm confessing right here and right now that traveling in the 90's "per hour" over a space of ground that reminds a newcomer of a huge field covered with snow, is not the most comfortable feeling, but I soon learned that there was nothing to get excited about as the driver, taking his hands off the wheel, said: "Oh! Hell, there's nothing to worry about here—couldn't hit anything, because there's nothing to hit and you can't skid because this stuff is like concrete and really holds when you step on the brake"—with this remark he proceeded to demonstrate by a fast braking motion and sure enough we stopped on a "dime." Well, I was sold then that the great Bonneville Salt Fields were everything that they were supposed to be and that that was the reason why automobile manufacturers traveled many miles to put their "horse-less buggies" through their paces, not forgetting the celebrated Mr. Jenkins and Sir Malcolm Campbell with their lightening fast "gas-wagons," both of whom have broken all previous records at Bonneville Salt Flats.

We were soon at work—our cars were getting the last "looking-over" and the start of a twenty-four hour run was on its way. Automobile history was now in the making. A new record was being established and it was really a sight to see. The run was started at 9 A. M. and was to finish at 9 A.M. the following morning. The track or course in which the car was to follow was the seven and a half mile run. There are other tracks here, one of which is nine miles, one ten miles and one twelve and a half miles to each lap. As stated above our car was on the seven and a half mile track and every lap meant seven and a half miles more added on the speedometer. The run was on and we were happy, happy to see an automobile that really performed as this car did. Traveling at a constant speed of ninety miles per hour and maintaining that speed for twenty-four hours, through the entire day and then into the night and finally at the dawn of day, well, it was one of those thrills that even a cameraman enjoyed.

Of course when I stated that it was a privilege and a pleasure to see this event, the writer also had a job to do and that job was to make a cinema (whu, whu—how do you like that expression—"make a cinema") but in plain English it means making motion pictures of the actual "run" of this car. Yes, sir, and it was a swell event to "shoot." Pictures were made from the ground, from the air, from another car running alongside of the test car, in the pit during refueling periods and the most sensational of all was the "shots" that were made at night with the use of "the good old flare."

Of course the pictures made from the ground might be classed with the usual everyday type of work, only I might add here that the bright sun beating down on these many miles of reflecting white salt certainly gives a lot of "F" value in "stopping-down." Even with the proper use of the correct filters, there's still lots of "F's" left in the light.

Aside from the usual every-day type of work, there was the air shots to be made. This was a thrill and I don't mean maybe. In the air and over the track, trying to get the shot we wanted of the car below, while on its run, we could not help but marvel at the great "white spaces" below us and knowing that this was all salt, yes, sir, the same kind of salt that you use daily on your dining room table, only that the salt that you use has been refined a little. We circled the track several times, we got our picture and then our pilot asked us if we would like to climb to a higher altitude where we could really see the entire salt-bed. We did, and this is a sight that I will never forget. Our car was down there running as it should, but from where we were at it looked like a little speck, like an ant running around on a lump of sugar.

Our next thrill came that night. We wanted night pictures and that means flares. For a matter of safety we were cautioned about lighting our flares, so that we would not interfere with the driver of the test car by lighting said flares directly in front of the car, where the driver would have to drive into the glaring light. Further, we were ad-

(Continued on Page Twenty)

Thoughts on a Recent Trip to New York

By CHARLES BASS

NEW YORK may be just another city to some, particularly to commuters like George Browne who, in all probability, makes the trip about once a week, but New York to the occasional visitor is truly the Glamorous Metropolis of the Western Hemisphere. One is driving along the Hudson River towards New York and hits the congested highway through Tarrytown, Dobbs Ferry and antique Yonkers with its two way street cars and one way tracks when suddenly you burst into the maelstrom of the Bronx. What a contrast from the comparative quiet of our own metropolis on Lake Michigan.

I, personally, have never failed to be thrilled by the impressions which assail one's eyes and ears of that drive down Broadway from the northern boundaries working slowly through mighty Manhattan and its sky-piercing towers dotting the atmosphere.

The uptown skyline of New York is impressive. Dominating all, the illuminated tower of the Empire State Building . . . but one must drive carefully and not attempt to see the sights. It is already night . . . the dust and grime of the day's drive from Rochester must be removed and it's still a long trek to Gramercy Park and to the relaxation of a quiet hotel room.

Times Square . . . myriads of gleaming lights and the wonder of them all . . . the Wrigley sign with its gorgeous colors . . . teeming and swirling with life . . . the quiet of Gramercy Park where all is serene, an oasis in the maelstrom of New York.

Manhattan absorbs one and you become an integral part of it. But after all, one must make pictures, particularly when one is in the camera business. Carrying a camera means to use it. What with dashing about, business appointments, Night Clubs, whirling and swirling, a shot here and there, crowds, football games and longing for at least a few hours to do nothing but wander with a camera. At last those few hours are available and precious ones at that. Leisurely strolling through the East Side with quaint pictures everywhere. A walk along New York Harbor, then quick shots of the Triborough Bridge, an engineering feat which makes one marvel, a tribute to the much maligned WPA. Inspection of the 1939 New York World's Fair Grounds, then shot after shot of lower New York, Broadway, Times Square and that much longed for excursion to the Empire State Observatory, though I am reliably informed that no true New Yorker ever visits this marvelous vantage point. As a hick visitor, I am, of course, eligible to ride up the 102 stories.

Visibility—five miles. Too bad, a dense haze pervades the atmosphere, though the sun is doing its feeble best. But there are picture possibilities. To aim the camera straight down on mighty Manhattan 360 degrees, one works slowly making picture after picture . . . there the Jersey side . . . there downtown, the maze of Wall Street . . . and off to the northwest the Triborough Bridge. But the haze is dense for even panchromatic film and filters. A few sky-piercing towers tempt one and hope that some

of the pictures turn out satisfactorily. Off in the distance in the haze one can see the elevated highway towards Newark, New York Harbor with sleek ocean liners plying their way to the Atlantic, Brooklyn with its curving streets that seem to end nowhere, the Bronx of massive stone pueblos densely peopled with humans. Then look down the 102 stories. Specks moving what you know to be on the sidewalk are just humans and one marvels that such microscopic beings could build such mighty works.

Slowly the sun is sinking in the West, a hazy sun. Night is slowly falling . . . the lights of the city start glowing one by one. Then masses of light appear like fireflies everywhere. Off in the hazy distance, Long Island, the Triborough Bridge, Queensboro Bridge, Williamsburg and that old patriarch, Brooklyn Bridge are illuminated.

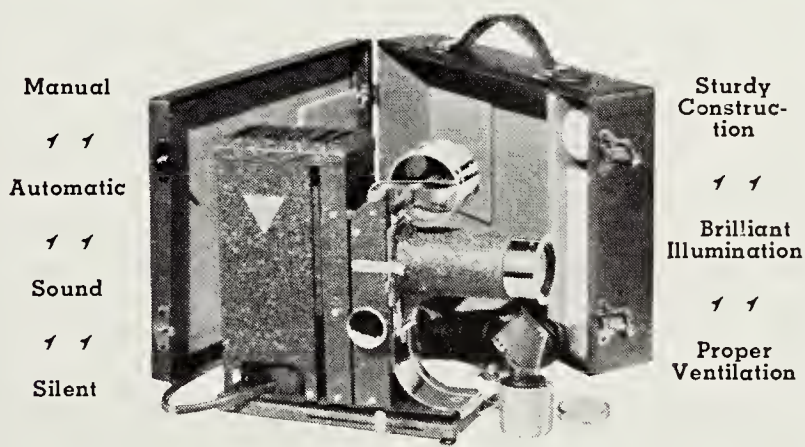
One can see why New York is great. Here is the beginning of all our commerce. Here is the great commodity market . . . the beginning of the distribution of all our money. A tiny area with teeming millions on the move. That is why New York is great and why New York with its cosmopolitan population representing every nation and race on earth live and work.

Good-bye Manhattan, until we meet again. You were a great bargain at \$25.00. Now we go through the Holland Tunnel, that monumental engineering feat, homeward bound via Camden and Washington. Across the river one looks back with mingled thoughts from Jersey to sky-piercing man-made towers which dot the Mighty City of New York.

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to all our j*

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"PATER NOSTER"

By RED FELBINGER

ALL the world has thrilled to that daring, death defying band of romantic warriors; that small army of men's men, who flirt daily with the Grim Reaper; romance with danger and disport like the Romans of yore, in their off hours—the newsreel cameramen! Everyone tags them as happy-go-lucky children of the Goddess of Luck, with nary a care or worry in the world. Having fought side by side with these knights of the cellyloid, and knowing their innermost worries when facing the dangers of duty's call, I claim what troubles these lads most when standing behind the trigger sights of their sharpshooting lenses is not the danger lurking before, not if they are going to score with the boss; it is not the thought if the expense account is going to get by the auditors—no, sir! What worries these thrill-courting lads is—BABIES! The babies they have left at home.

Now don't get me wrong! The gang hasn't turned sissy, but when they started making cameras heavier, and it was beginning to look like the old game was all shot, the old Goddess of Lady Luck smiled once again on her fair-haired boys and blessed her chosen lads with brand new babies and now the babies have turned out to be a bigger and greater problem than sound ever was or could be. Therefore, this humble article. I am told Cinema Digest is primarily a technical magazine; hence I undertake the most intricate of technical subjects—the raising of babies. The above I most humbly admit is by an experienced father and is written, not for the average father but for the lunch gobbling, time saving, ever in a hurry newsreel father; and I hasten to add this is offered after witnessing the problems of the many newsreelers who have undertaken the greatest of all sports: the raising of babies.

Of course, my subject will probably bore such old timers as Bill Strafford, Shorty Richardson, Norm Alley, "Bull" Phillips and a few others who now spend Sunday morning censoring and confiscating the scandal sheet of the newspaper to keep adolescent youth from making papa's mistakes, but it is written for the noble experimenters who have entered that newest of fields, the raising of the "scientific baby." My own private subject is proudly named "Rita Joyce." The other night I entertained another D.B.R. (doctor of baby raising) at my home, Professor Jack Barnett of Kansas City. He followed closely on the heels of Doctor Jerry Altphilisch. In comparing experiments with these honorable gents, I find that the time is ripe for enlightenment for such eminent dog fanciers as Orlando Lippert and Martin Barnett, should they plan to enter the noble occupation of saving the human race.

It is for such gentlemen that I take typewriter in hand. True, I know the raising of thoroughbred pekinese and wire-haired terriers calls for a complete knowledge of dewormers and corrected dog-formula bones, but on entering

the delicate subject of babies, one must be well fitted and advised. My article comes from speaking to expert brain-trusters in this great undertaking.

For instance, Dr. Alfilisch had great difficulty in getting the proper grade of vitamin D milk on moving to Chicago from Detroit; while my Rita Joyce thrives on condensed milk.

Dr. Jack Barnett advised me of his aptitude on using the V type folded dydees on Jacqueline taking advantage of the economy of only one safety pin for efficiency. However, I have found that the square box-shaped fold dydee on Rita Joyce, using two safety pins is more to my liking, since it guarantees Rita Joyce more air-conditioning.

Brother Jack's V-shaped dydee, with one safety pin, has its good points. It eliminates loose safety pins lying on dark nursery floors which is an asset when marching back and forth during the wee small hours; since I have courted and met a safety pin with my bare feet, but I never have been much on making the corners match on folding V-shaped dydees; therefore, gimme the new style box-shaped dydee. Another thing, Professor Jack is just old fashioned enough to wash his own dydees. For the novice I suggest using the new dydee wash service. I use this system. Harry, the dydee man, calls daily with a fresh can of dydees. This helps me tremendously, especially if I have been detained until 12 midnight with the boys at "Union meetin'." Of course, this is not necessary, especially if you get up a half hour earlier in the morning but I use up the extra half hour with Rita's bath, experimenting with various soaps. At first, used pure castile soap exclusively, but now find Rita enjoys eating "Palm-olive" much more, so believe I will change her to that brand.

Professor Barnett thrilled to telling me of how he mixes his formulas with Dextri-Maltose and milk. So being something like four months ahead of Jack showed him Rita Joyce's collection of canned vegetables. Well I had to explain them all, and now to enlighten the other brothers I will designate all of Rita's homogenized numbered foods—1 is a vegetable mixture of peas, beets and asparagus tips; 2 prunes; 3 is a formulated combination of carrots and peas; 4 applesauce; 5 a combination of fruits; and 6 is apricots.

For real funny faces on Rita gimme numbers six and two; it kinder seems the tartness of these two really makes her pucker up her face more than anything else. I did try another canned product on her which made her wrinkle her nose more than anything—Tapacan Beer, but the wife says that one is absolutely out.

I was told that the "toidy-seat" was a quicker way of house-breaking than the "potty chair." However, am much pleased with the results I am getting with the "potty chair" as this gives me a chance to glance over the front

(Continued on Page Sixteen)

MINIATURE AND CANDID Photography —

Better Gradations in Small Negatives

By E. W. LOWE

DURING the past few years the cry has been for fine grain and more fine grain in miniature negatives. This, of course, was necessary for the production of big enlargements, but of the many formulas which sprouted in magazine articles and advertising literature most gave satisfactory grain but at the expense of truthful gradations and general negative quality.

Now the primary purpose of a negative is to make a picture, and if the picture doesn't look like the original subject, why even make the negative? Photographic chemists realize this and the formulas which are now being promulgated are designed to give better gradations—that is, a more truthful representation of the subject, together with greater ease of contrast control. The first of these formulas was the Edwal-12 which contains Diamine-P, Glycin, and Metol. However, for some purposes a finer grain is needed than the diamine-glycin-metol combination will give. Hence we have worked out and are pleased to publish herewith the formula for a developer that will give as fine grain as the best of the diamine-glycin developers and as good gradations as the Edwal-12.

The new formula is the Edwal-20. It requires less exposure to produce negatives of a given density than the Sease No. 3, but somewhat more exposure than the Edwal-12. The formula is:

Water (distilled) 1 liter (1 quart)
Gradol* 5 grams (75 grains)
Anhydrous Sulphite..... 90 grams (3 ounces)
Diamine-P** 10 grams (150 grains)
Glycin..... 5 grams (75 grains)

*Gradol (gray-dol)—a derivative of para-aminodiphenol. Not previously marketed as a photochemical.

** Paraphenylenediamine base (not the hydrochloride).

Developing times for 35 mm. films:

22 min. at 65°; 18 min. at 70°; 14 min. at 75° F. for all the common Eastman, Agfa, Gevaert, and Perutz films with the following exceptions:

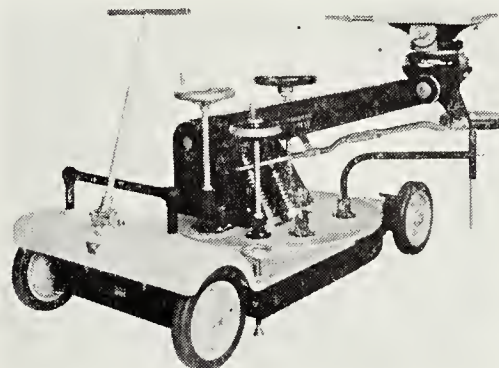
Super-X: 26 min. at 65°; 22 min. at 70°; 18 min. at 75° F.

Panatomic and Finopan: 14 min. at 65°; 12 min. at 70°; 10 min. at 75° F.

Micropan: 11 min. at 65°; 9 min. at 70°; 17 min. at 75° F.

This developer is intended for the production of negatives that can be enlarged up to 30 diameters, but if care is taken to use the shortest exposure that will give shadow detail, negatives can be produced that will stand enlargement to almost any diameter without the appearance of grain.

The solution keeps well and can be used until ten or twelve Leica, Contax or vest pocket rolls have been developed in one liter. The developer works best at 70°



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when fresh but after six or seven rolls have been developed it may be used at 75°, since the increased activity of the developing agents at the higher temperature helps compensate for the restraining action of the bromide which is absorbed from the emulsion during development of the first rolls.

If it is desired to pre-age the developer the Diamine-P, Glycin, and Sulphite should be mixed and pre-aged, and the Gradol should be added at the time the solution is made up.

PATER NOSTER

(Continued from Page Fourteen)

page of the morning paper, whereas with the "toidy-seat" it was necessary to kneel there and tell Rita Joyce fairy stories to keep her amused.

Both Jack Barnett and Jerry Altphilisch expressed their surprise at the ease with which I broke Rita of her two A. M. feeding. Well, I always did like my sleep so I pass my secret on to the other fathers. For instance, Jack professed consternation at the idea that I wouldn't admit him to Rita's nursery at 11 P. M. to see the little pet. Quoting Jack, "No wife, or even mother-in-law would keep me from showing Jacqueline off!" Well, now that's where the guys are wrong. Rita Joyce's act goes off at 6 P. M. There are no evening shows at our house. They either watch Rita chew up the furniture in the morning and afternoon, or else.

Cod-liver is better for Rita than Halibur oil as she doesn't have quite the herring smell with the former as she does from the latter. Now as to the milk formulas: I already mentioned that I use canned milk where Brother Jack uses cow's milk. I find Rita burps much more readily on the canned milk.

Another important thing is the continuous guarding of the baby's health. The other afternoon I managed to get time off from my duties at home to play a few hands of cards with the boys. One of the lads was heavy winners, when he suddenly announced he had to check out. Inquiring why he got the idea so suddenly, especially when most of the money in the game was piled up before him, we were informed that his daughter was down with the whooping cough. Well, sir! I never had such a sudden scare in life. I went home, washed my hands thoroughly (he had dealt me several dirty hands of cards that I certainly now knew must have been contaminated) and changed all of my clothing before getting within ten feet of the offspring. You just can't be too careful when handling babies.

The only problem that I have not solved as yet is how to cure Rita of her outbursts of anger which she displays upon handing her the celluloid teddy-bear when she is yelling for my pet wrist watch. Where she mastered this is beyond me, as it certainly does not run on my side of the family. The way the kid tosses that teddy-bear, well, I don't know how to explain it, but it has all the characteristics of that sugar bowl that connected and left the permanent nick beside my ear one certain night out at our house.

I trust the above helpful hints will prove of great value to the rookies who may join the ranks of we fathers. Of course, there are so many oldtimers who have gone through all this, the Tony Caputos—Verne Blakeleys—Charley Geis's, etc., but we must arise and pay silent tribute to those two great fathers of our profession—two men who shine above all we other fathers—those two silent rugged individualists—criteria of fatherhood—Wayman Robertson and Emilio Montemuro, who can take it double; our own two twin raisers.

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My Six Days in a Maternity Ward

OUT in California

WHERE the sun shines bright,
UNLESS it's "unusual."

WE were almost at the end

OF "shooting," for a perfect day.

FROM the rich brightness of the sun

I found myself being photographed,

IN portals of darkness

IN many positions, not portraits

BUT by one of those x-ray "gadgets,"

IN the Santa Monica Hospital, Calif.

NEXT, I was being wheeled around

SOMEWHAT like a "sight-seein'" trip.

FINALLY we reached the third floor

AND I spied a sign, SILENCE, MATERNITY.

AND much to my surprise

I was rolled into Room 309.

WELL now I was trying to think

WHY was I in a MATERNITY ward?

AS friends came in to see me

THEY, too, would wonder,

YES, and sometimes snicker

AND ask where was it?

WHERE was it and what was it

WAS what I wanted to know.

I laid there with a sore head,

A breaking back,

A bruised chest,

AND cut legs,

WONDERING what all this had to do with

M A T E R N I T Y

PREPARED for the worst

AND with almost enough nerve

TO demand to know my rights

WHY and what I was doing on this

THE third floor, known as

MATERNITY exclusively

AND at almost this same moment,

IN walked a doctor and a nurse,

AND advised me that

"I was a lucky man."

WHAT now, I thinks I am lucky.

YES sir, it won't take long,

SAYS the Doctor Sawbones.

SIX to eight weeks and

YOU'LL be like new.

SAY "What the h—— is this"

I asks, "Six to eight weeks,"

"OH! Your condition," replied DOC.

YOU have a broken leg.

WHICH will require a cast

THAT will remain on the leg

FOR that time.

SO for the first time in my life

I am sole boss over

A real California cast

(Pictures or no pictures).

BUT, "Doc," I asked

WHAT am I doing on the floor

FOR maternity cases?

"OH! that was on account of

BECAUSE that we were not

CERTAIN when you came IN.

WAS MY FACE RED!!!!!!"

H. H. B.

OUT OF FRAME

"IN-'N-OUT-O'-FRAME"

"**A**CTRESS Tells Heir's Efforts to Buy Her Love"—Headline in the Chicago Trib. Tsk-tsk-tsk! Is there *anything* for which some of these actresses won't do some gold digging?

— 666 —

There were two cameramen, one was Shott and one was Nott. Deciding to shoot some tests before beginning on a picture, one was to stand-in for the other. Now, here is the problem: Shott wanted to shoot the scene because he said that he was never shot in his life and didn't want to start now. Nott was never shot either. If Shott shot Nott and Nott was not shot, then Shott would be angry. If Shott was not shot then Nott would snort. So they decided to shoot each other to avoid making the other angry. But here is where the trouble starts. The tests told the story all right, but they got their dope mixed up and so couldn't tell which was what. If Shott shot Nott in this scene then Shott was not shot, but Nott was not Shott—he was Nott, so who was shot? Nott said that he was not Shott, but he was shot. Shott said that he was not Nott, but was Shott. Nott said that he was Nott and was shot by Shott and Shott was not shot at all, although he was Nott. Now then, if Shott shot Nott and Nott was not Shott, though he was shot by Shott—that is to say Nott was Nott but Shott shot Nott, then why is Nott nottz enough to say that he is Nott. We know that he was shot.

Who do you think was shot?

— 666 —

And then there is the sausage factory that advertises its sausage by saying: "Our 'wurst' is the best."

— 666 —

It was on a crowded street car in Moscow, Russia. A burly GPU (secret police) was standing at the front as the car proceeded slowly, swaying uncomfortably from side to side. Suddenly, over the buzz of conversation about the present price of red paint, was heard a loud, healthy sneeze. The GPU came quickly to attention. At his order the brakes screechingly brought the car to an abrupt stop. The buzz of conversation became suddenly quiet. All eyes were directed in awe at the GPU.

"Who snizzed?" he roared in a gruff voice.

All was quiet. A slight man, sitting with a friend near the rear of the car, became panic-stricken.

"What shall I do?" he whispered to the man with him. "Shall I try to run away? What shall I do?"

"You better confess," he answered. "It will go easier with you and he will find you out anyway."

The little man arose and went slowly to the front of the car and said very meekly to the GPU, "I did, sir."

"Gezuntheit!" roared the GPU and gave the signal for the car to proceed on its way.

— 666 —

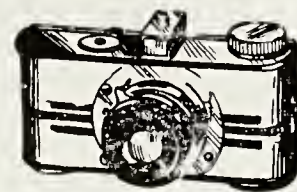
A director and his cameraman were driving back from a location trip one evening. It was a beautiful moonlight night.

"Doesn't a night like this make you wish that there was such things as point 005 lenses, super colossal super X film, and 365 degree shutters!" mused the director. "Think of the beautiful moonshine you could photograph." "T wouldn't do much good," replied the cameraman, "You'd need a *still* camera for that."

— 666 —

"And that's the end of my tail," said the cat as she backed into the lawnmower.

S.W.G.



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GOOD NEWS FOR THOSE WHO USE LIGHTS

LIGHT! Light! What a magic word! What would we, in the picture business, do without it?

Have you ever tried to light up a huge cellar where, as the saying goes, you couldn't fog a negative? Or the interior of a submarine, cramped with intricate machinery, full of dark corners and reflecting surfaces? Have you ever tried to throw enough light into such places to make it possible to shoot at 1/50 of a second and get negatives of full gradation and details, without the use of numerous high-powered lights and scores of assistants?

If you have ever had any assignment similar to these mentioned you will appreciate and read with interest these notes about the new Reeves-Lite. It may be well to mention here that the name "Reeves" means much in the cinematographic field. The complete name is Art Reeves, who was, and in fact still is, considered one of Hollywood's "ace" cinematographers.

It was a bold step for Art, to enter into his own business, specializing in the manufacture of motion picture equipment. But he

made the dive, and what's more he made good. He is turning out some of the finest equipment used in the business, and the foremost thing in his mind, is to manufacture equipment that will do the best job with the greatest ease of handling. His many years of actual experience "on the firing line" qualifies his knowledge of what is necessary to the photographic technician.

We started to write about lights and then drifted into a cinemabiography, but back to the new Reeves-Lite. Let us state here that this is one light which is versatile, feather-

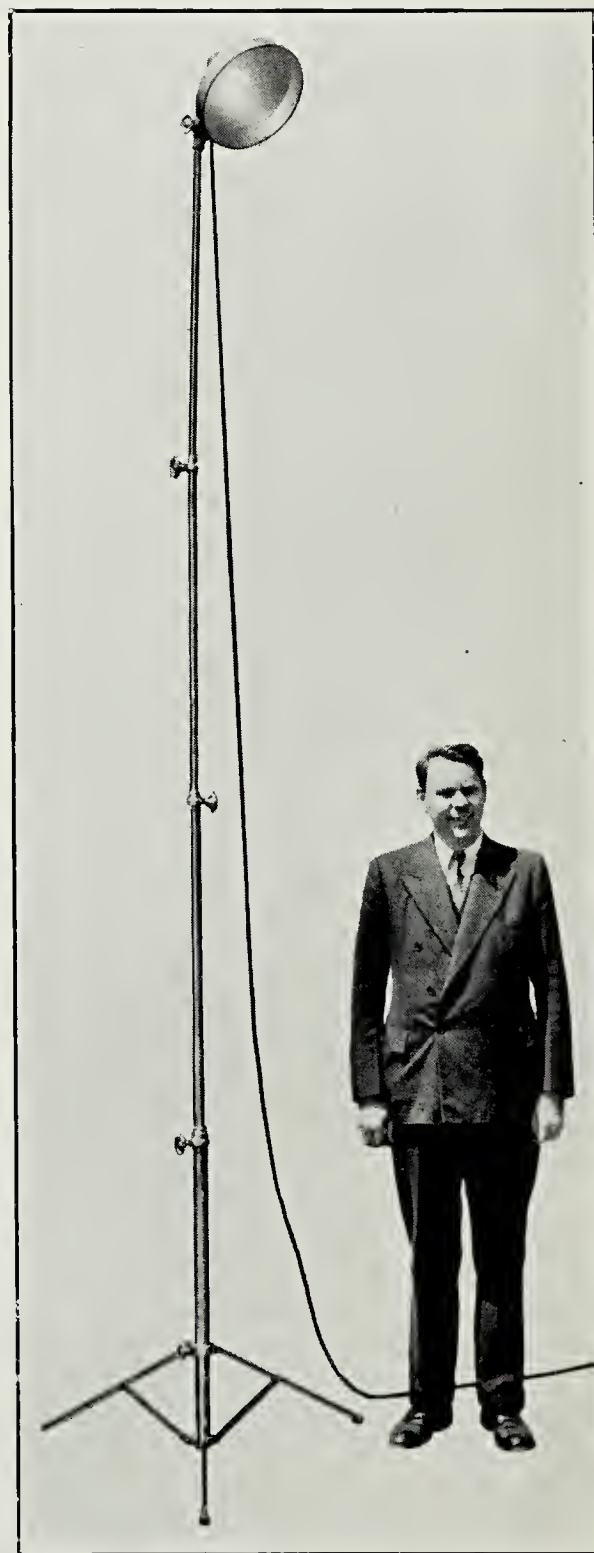
weight and easily installed, it solves all problems. It will really illuminate subjects correctly from any angle, no matter how cramped, how restricted the working space, or how intense the darkness that must be turned into photographic illumination.

The Reeves-Lite is entirely new and when equipped with a No. 4-1000 watt photoflood gives double the foot-candles of any other lamp and since the reflector, which is of a new type, throws the light a long distance its efficiency exceeds that of all others. If a soft light, instead

of a beam, is desired the lamp may be focussed by sliding the socket in and out of the shell.

A new principle has been employed in the finish of the reflector. The exceptional reflecting qualities of polished aluminum are utilized to the best advantage, and full use is made of the metal's superiority over plated reflecting surfaces. Plated surfaces will scatter light and are unsuitable for color photography. Aluminum gives a wider range of color spectrum and tends to "bunch" light more evenly and usefully. The reflecting surfaces of this light is polished by a special process and is not to be confused with the ordinary type of polished aluminum. The lamp thus presents the best possible ratio of illumination to weight and displacement, approximating the ideal condition. For outdoors, these lights make wonderful "boosters" for throwing light under trees, in dark alleys, into murky shadows, or boosting the fading evening light so as to take advantage of every minute of daytime. Plugged to sets of "B" batteries, they enormously facilitate the task of the photographer. Commercial and Newsreel men will find them of invaluable assistance in getting their "stuff."

The giant stand of this light telescopes from 4 to 11 feet, thus placing the light itself 12 feet above the floor when fully extended. The stand is equipped with rubber feet, making it possible to work on polished floors. It is so balanced, that even with the light



(Continued from Page Twenty-two)

Among Those We Will Miss

John T. Flanagan

JOHN T. (Jack) FLANAGAN, born June 3, 1892, Lebanon, Wisconsin (Dodge County), died October 10, 1936, at Salt Lake City, Utah.

That is the simple epitaph that records the birth and passing of one of the most interesting lives in newsreel history. A lifetime of 44 years which saw the birth and fruition of the motion picture industry as it is today.



The real story of Jack Flanagan will never be known in all its fullness because it is written in the memories and the hearts of hundreds of friends who knew him in little towns and big towns all over America. Primarily a man trained with all the instincts of the school of news-getting he was one of the first to see the possibilities of industrial motion pictures as an advertising medium.

His untimely death on October 10, 1936, as a result of being hurled from the top of a moving camera truck while filming the 1936 Ab Jenkins-Firestone speed trials on the salt flats in Utah, was a severe shock not only to his own organization and his family but to scores of theatre men and old time newsreel photographers. This was particu-

larly an unfortunate accident from his own standpoint as it happened at a time when the organization he built was in the height of its success. His organization will continue intact to carry forward the work of the institution he so ably built, taking inspiration from the memory of a man who carried high the torch of admirable ambitions and devoted friendships.

Born on a farm at Lebanon, Wisconsin, Jack Flanagan was a classic example of a self-made man. Literally raising himself almost every step of the way by his boot straps through all difficulties.

At 14 he left the farm near Whitewater, Wisconsin, to sell magazines in Janesville, Wisconsin, and later worked as an usher in an Indianapolis theatre. Here he became interested in the sale of film for various exchanges and established a reputation as a star salesman. He later went to Chicago and was connected with Essanay studios as a cameraman and soon after started free-lancing for Pathe. Shortly after this he went back to Indianapolis to start a trailer business and then began his career in Cleveland, where he founded the Cleveland Motion Picture Company. The partnership, however, lasted but a year when it was dissolved.

With only one old Universal Camera as equipment and a laboratory helper he founded the Tri-State Motion Picture Company in the old Film Building, making both industrials and free lancing for newsreel companies. Business grew and in 1935 larger quarters for the business were secured in the Rockefeller Building at West 6th and Superior Avenue, including a large studio, projection room, complete laboratory, developing machine and RCA High Fidelity Sound System.

Jack Flanagan was a staff correspondent for Pathe News for 17 years and covered many notable stories for the newsreels including the crash of the air-ship Shenandoah. His record includes many exploits and narrow escapes while working in the capacity of a newsreel cameraman. During the Republican convention in Cleveland this year, his studios were the headquarters for all the old time newsreel men, his studio turning out the film for the complete release for Paramount for this event.

Always a promoter, Jack Flanagan was known in motion picture circles in New York, Chicago, and on the coast, and tales of his ingenuity and exploits form an illuminating chapter in the business to which he had devoted his life. In his earlier years he was a member of many clubs, but those concerning motion picture work were closest to his heart. He was a member of the Variety Club and one of the first members of Local 666 and the Society of Motion Picture Engineers.

Surviving are his wife, Mary, who was with him at the time of his accident; two sons by a previous marriage, Donald M. and Russell A.; his parents, Mr. and Mrs. Terence Flanagan, two sisters, Mrs. May Schwartz of Troy Center, Wis., and Sister Mary Venantia of the Dominican Order, who is stationed at Atlantic City.

Little America in the U. S. A.

(Continued from Page Ten)

vised about lighting our flares in the path of the wind in which gasoline fumes might travel during the night refueling scenes. After we had received our instructions on where, how and when, we finally arranged our "shots" according to instructions.

It was a sight to behold when our first flares beamed over this white track of salt. The night sky, a full moon looking down on us as if he, that man in the moon, also seemed to enjoy what we were doing. Flares were now burning and reflecting back the white of the salt, our test car in the distance was approaching us at that constant speed of 90 miles per hour and coming into the pit for a refueling. All in all it was a mental picture of something different, something that sort of makes one feel proud that he is part of even if you are only the "guy" that is referred to as "Fellows, that cameraman's here again."

Refueling, accomplished with such expert speed, accuracy and care. Believe you me, I was burning one minute flares and my "shot" was of the car coming down the stretch and stopping at the pit. Here the tires are checked, the oil checked, brakes and all those little things and at the same time the gas tank was being filled and then away the car goes for another 150 or 200 miles before the next refueling. Well, getting back to the flares, after "shooting" this complete "shot" the flares were still burning. I checked with one of the A.A.A. representatives and he advised me that the refueling and complete inspection is from 25 to 30 seconds. It was sure a swell sight.

Referring to the A.A.A. I mean the representative of the American Automobile Association. Let me tell you, after seeing what happens on a test run of this kind and you read ads that claim this thing or the other thing, under the auspices of the A.A.A. you can believe everything you read. These fellows, all fine fellows don't forget (because I may want to meet them again some day), stage the run, check the time and get all of the official data. They figure in terms of split seconds—they weigh gasoline on scales to the ounce instead of through a pump, in other words, when they arrive on the job—THEY STAGE THE SHOW.

Getting back to our "Little America in the U. S. A." it is amazing to note the difference in temperature of day and night at Bonneville Salt Flats. During the day, when the sun is beating down it is plenty hot, a summer heat that makes one want to look for a nice shady spot and at night it is just the opposite, you are ready to look for a nice warm stove to keep the timbers warm. With the two extremes it reminded me of Chicago with its summer and winter. At the hours of 2 A. M. to 3 A. M. is when it gets bitter cold out there on those old "flats" and you thank the fellow that tipped you off to get some good old fashioned "long drawers" before leaving Salt Lake City.

Working through the night and waiting to get sunrise pictures with this car still doing its stuff was another sight long to be remembered. Between the hours of 5 A. M. and 5:30 A. M., I have never seen such an array of color as the sun was rising up over the mountains east of us. Nature sure does herself proud in hanging up the sun for the day's work at Bonneville. The golden sun rays mixed

with browns, red, ambers, are far beyond any artist's dream. Against these colors is our car silhouetted, still humming at that constant speed that it has maintained the whole day before and on through the night at 90 miles per hour.

For the information of all you 666'ers there is one man, that if you ever get into Salt Lake City, don't fail to meet him. He is one man that knows this country, these salt beds and maintains a photographic establishment there and his doors are always opened to outsiders for anything you want or need. He was with us at the Salt Flats making the stills on this event. With him he had his big trailer that was a gift to us all to get away from the heat of the day and to warm our bones during the night. He is a real fellow. I'm telling you fellows to look him up whenever you get out around the Great Salt Lake district. His name is Bill Shipler and he can be found at 117 South Main St., Salt Lake City. Look him up, fellows, and make yourself known. He's one swell fellow, you'll agree with me after you meet him and if you like to hunt deer and you're there when the season is on, just tell Bill and watch what happens.

So it was soon time to leave our "Little America in the U. S. A." Our test was over. Records had been broken and new records were made. Everybody was happy. And then came the sad words, "break camp." Our test cars stood by and seemed to be beaming with pride and admiration at their own performance in "doing their stuff." Although happiness reigned with the success of breaking records, the thought of breaking camp and leaving for home soon told us all that we were nearing the end of one of those assignments that will long linger in our memories.

We leave, heading back over the trail that led us into the "great salt fields" of Bonneville and looking back as our cars carried us away we see the wide stretch of salt with its scenic mountain background, lit with long shadows from the setting sun giving us an everlasting picture that we shall always remember as the "Little America in the U. S. A."

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THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Section XIII—The Television Equivalent of the Loud Speaker of Radio Broadcasting—Introduction

At the transmitting station the lights and shadows of the image produce a change in electrical voltage and current in the amplifier, modulator, radio transmitter and aerial; at the receiving station through its aerial, the radio frequency stages, the detector and the audio frequency portion of the receiver. At the output terminals of the receiver, the variations of current are essentially duplicates of those entering the initial amplifier at the transmitting station.

Since these changes are available at the output of the receiver, a medium for accepting and converting them into the form of the original picture should be created.

Fundamentally, this is done by a reversal of the transmitting process, using the Nipkow disc and a special type of neon lamp.

Section XIV—The Neon Lamp as Used in Television

At the transmitting station the photo-electric cell accepts the varying degrees of light and shadow, and changes them into electrical effects. At the receiver these are finally fed into a neon lamp which converts them into light impulses.

Such a "glow lamp," as it is sometimes called, consists of a glass envelope similar to that used in a radio tube. Within the globe are two flat metal plates located parallel and proximate, much like those of a fixed condenser of the brass-mica type. In one common lamp used for tele-

photo-electric cell. A current will flow between the plates connected to the positive and negative terminals of the battery.

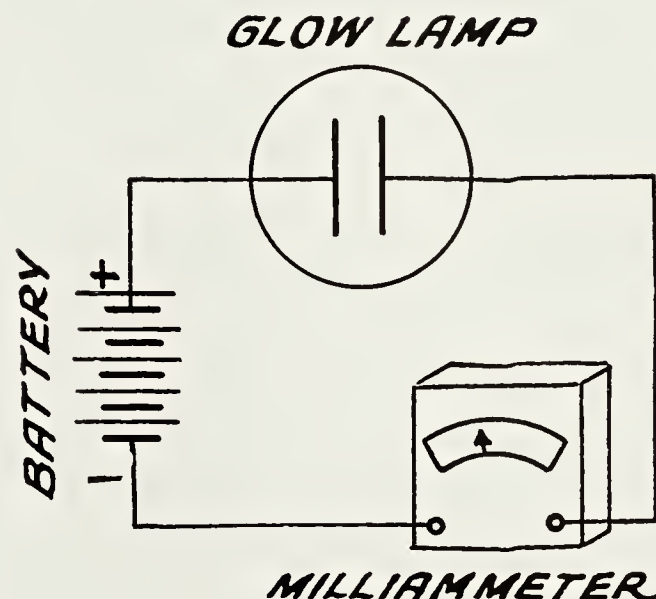


FIG. 14

Two hundred volts of direct current are normally used across the above-mentioned sample. While the usual current under these conditions is about 20 milliamperes, there is a variance of 10 to 20 due to the size and type of lamp and the amount of voltage supplied.

This glow lamp may be set up as in Figures 15A, 15B or in any other manner in which the plate voltage of the final amplifier tube may add and detract from the static voltage of the lamp. It is necessary to use a resistance in series with these since they are inherently unstable, and may have a very pronounced negative characteristic when the current reaches high values. While the connection of Figure 15A may appear to argue against this, observe that the plate to filament resistance of the amplifier tube is in

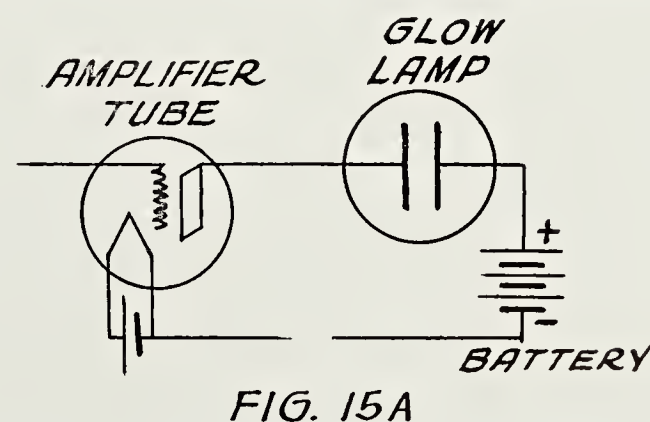
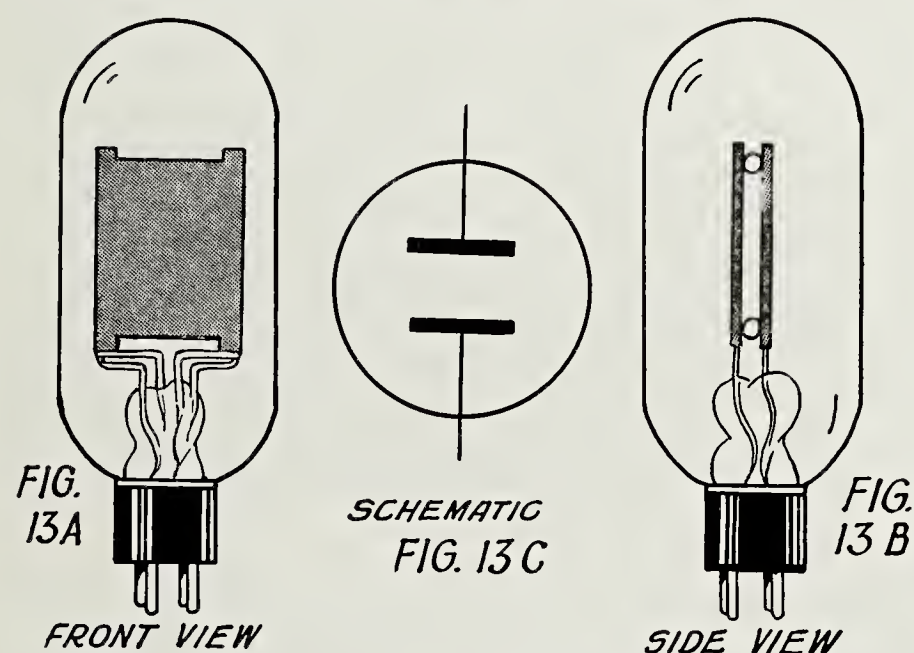


FIG. 15A

vision purposes these plates are approximately $1\frac{1}{2}'' \times 1\frac{1}{2}''$ in dimension. This is clearly shown in Figure 13A, a front view, Figure 13B, a side view, and Figure 13C, the symbol for such a lamp. In each tube neon gas at a definite pressure is inserted.

When a lamp is connected as shown in Figure 14, the plate connected to the negative side of the power supply will glow with a pale pink color. If the voltage is augmented this will brighten, and vice versa. Since both plates are identical, either may be attached to the positive or negative side of the battery.

The action within the lamp is similar to that of the

series with the battery and the lamp. However, should this resistance be insufficient to limit the current to the maximum computed by the manufacturer, an additional series resistor must be used.

In Figure 15B the direct current portion of the circuit is equal to that of Figure 14 except for the series resistor adjusting the current flow, and consequent adjustment of the amount of light from the glowing plate under a condition of no modulation.

The amplifier tube receives its plate voltage through the choke coil, and between this and the glow lamp is a condenser of high capacity. The current changes in the plate circuit of the tube impress themselves on this, which in turn passes them on to the neon tube. During the re-

ception of television signals the instantaneous voltage across the lamp is equal to the direct current voltage of the lamp circuit plus or minus the instantaneous voltage from the amplifier tube circuit.

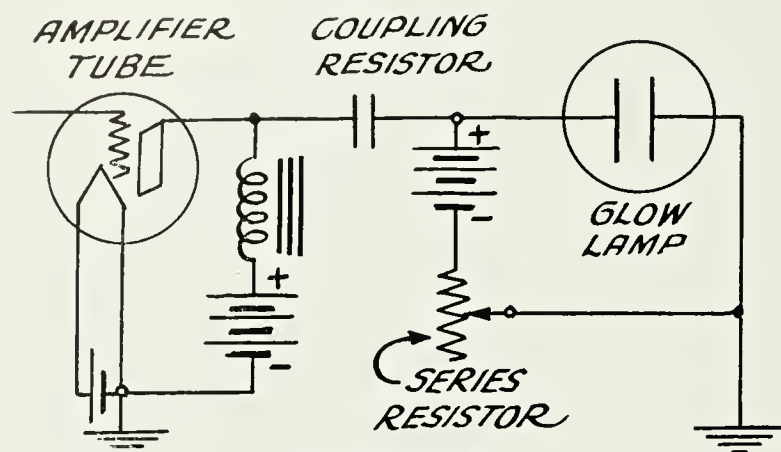


FIG. 15 B

The glowing plate of the lamp will brighten or dim in accordance with the amount of voltage impressed upon its terminals at any given instant. Since the amplifier tube constantly varies the voltages on the lamp, the brilliance of the negative plate will deviate in step with the voltage changes in the amplifier tube plate circuit. These changes will represent the lights and shadows of the transmitted picture, and there occur, in consequence, similar adjustments in the amount of light from the lamp in accordance with the lights and shadows of the original image.

The received current fluctuations have been transferred into corresponding light variations, but, as yet, no picture exists. The light variations must be assembled to fit in their proper places in the picture frame.

Good News for Those Who Use Lights

(Continued from Page Eighteen)

12 feet in the air, there is no danger of tipping. It will hold one, two or four lights yet weighs only 8 pounds. Expensive duraluminum and aluminum are used in its construction which insures rigidity and long life.

The light may be instantly adjusted to any vertical angle, when mounted on the "giant stand" and this is a great help when over-head lighting is required, since "top" light is one thing that most of our commercial pictures lack.

The reflector weighs only two pounds including 20 feet of rubber covered wire with plug and bracket. It is equipped to handle the No. 4-1000 watt photoflood, which has a burning life of 10 hours.

One of the greatest advantages of this new light, is that a number of them may be carried in the back end of an automobile, without taking up much amount of space. Congratulations are due to Art Reeves for his contribution of one of the most sensible features presented to the industry in recent years. Upon seeing this light for the



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first time, "Bob" Duggan, a pioneer in the lighting business and who maintains a rental service of the finest equipment available, asked for the privilege of trying it. He put it to every test and it proved all the claims made for it.

The illustration with this article was made with only one of the new Reeves Lites. The exposure was 1/5 of a second at F. 11, with the light elevated approximately 11 feet high and 20 feet from the subject. "Bob" Duggan, when asked what he thought of the light, answered, "Just say anything you want about it, and I'll back you up. It's the finest fixture I have ever used." From an authority who has tried and tested them all, that is high praise.

The new "Reeves Light" may be seen by communicating with Harry Birch in Chicago, who has received one of the first of those to leave Hollywood.

How to Make a Fish Sit? It's Task for Cameraman

By DAVID NICHOL

TEMPERAMENTAL subjects are no novelty for photographers, but Loren Tutell is convinced he has a flighty and uncertain group that would send most cameramen to WPA or turn them to selling life insurance to their relatives.

It's a question of waiting hours, sometimes days, for a shot that will meet the requirements and of battling technical difficulties. Most of all it's a question of persuading the fish—yes, fish—to pose while the camera clicks.

Photographer Tutell and W. H. Chute, director, prepared the guide book of the Shedd aquarium at the time of the world's fair and have continued to get pictures of the aquarium's specimens. They do much of the job together, for Mr. Chute has been making piscatorial portraits for seventeen years and in many parts of the world. Mr. Tutell was an experienced motion picture and still photographer before he joined the aquarium staff six years ago.

Light Principal Problem

But let them tell the story of a typical setup and the troubles it presents.

"First," says Mr. Chute, "it's a problem of getting enough light. The aquarium is wired throughout for heavy voltage, and arcs are used while cameras are focused. Photo-flash bulbs are utilized, however, for most of the actual portraits.

"If the fish are not too nervous, like the bluefish or the cod, or too large, like the six-foot jewfish, they are transferred to a smaller special tank. It frightens them and we must wait for them to recover.

"We turn on the lights. That starts the difficulties all over. We can't focus on the fish at all but select a spot in the tank and use that. Then there's another thing. If the fish is small the lights heat the water too much and the water in the tank must be changed.

"Finally, with the camera and the background set, it's a question of waiting for the fish to swim through the line of focus—and most of them like to hide in the rocks. Sometimes we can prod them to the right place, but most of them don't take to coaxing. Remember that one—"

And they both laughed as they told of the fish that lay on the bottom of the tank and refused to swim or stir. Only one, the lion fish, is ready to pose at all times and seems to like it.

Cage for Small Fish

For small fish a tiny glass cage, invisible in the picture, is suspended in the larger tank. Special filters have been devised to meet the difficulties arising from the color of the water. Exposure speeds are determined not by the speed of the fish in the tank but by the speed with which the fins are moved. But it is impossible, they say, because of lighting difficulties, to take a picture faster than one-hundredth of a second.

Tutell's pictures twice have won first and second place in the marine division of exhibitions at the convention of the Biological Photographers Association. He believes there are only three professional cameramen in the country who devote their entire time to fish.

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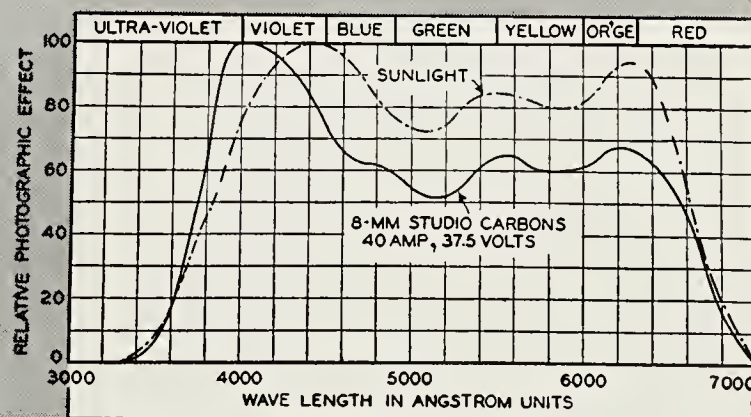
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● The first installment of this exceptional fine work will appear in the February issue. We strongly recommend that our readers file these pages as they appear each month.

● Cinema Digest is indebted to J. E. Brulatour, Inc., for securing this privilege for us.



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LOCAL 666

By W. H. S.

WITH the departure of 1936 we believe we have seen the end of the years of depression, members of Local 666 have much to be grateful for, the last six months of this year has shown an increase in employment amounting to about 25 per cent. The outlook for the New Year looks very promising for additional employment of our members.

Many contracts were signed in the old year providing for higher wages and better conditions. It behooves each one of us to work diligently to improve our efficiency in our chosen profession.

Our International Alliance is fortunate to have at its head a fearless dependable leader who is blessed with the virtues of good judgment and fairness.

Our Country has been blessed with splendid governmental leadership. For the first time in history the aged can look forward to the warmth of security in their waning years.

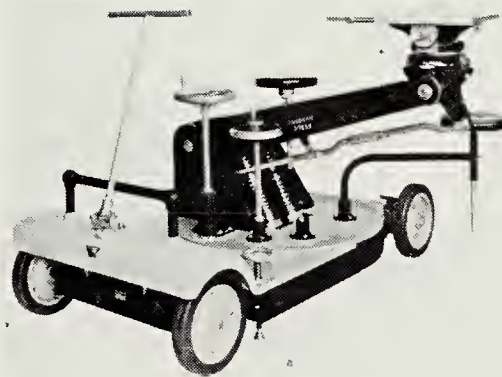
Let us hail 1937 with a spirit of optimism, firm in the belief there will be jobs for all. Good luck, good health and a Happy prosperous New Year.

The results of the Election for offices on the Executive Board for the Two Year period 1937-1938 are as follows: President, Bertel J. Kleerup; First Vice-President, Emile Montemurro; Second Vice-President, Fred Felbinger; Recording Secretary, Mervin La Rue; Financial Secretary, Walter Hotz; Treasurer, Fred Hafferkamp; Sergeant-at-Arms, Harry Birch; First Trustee, Floyd Traynham; Second Trustee, Harold Witt; Third Trustee, Charles Geis.

THE MOTOR PEST

By J. ROY HESS

You know "the Guy" whose great delight
 Is speeding up to beat the light,
 And when he's in a traffic jam
 He adds confusion to bedlam
 By sounding of his warning horn,
 Like Banshee wails of souls forlorn
 He sounds this horn with all his might
 No matter what the time of night,
 He tells you with his face all smiles
 Just how he averaged sixty miles.
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Physical Development . . . What It Can Do and Cannot Do

By E. W. LOWE

THIS is not an article on how to produce negatives by physical development. The details of procedure are admirably set forth by Allan F. Odell in the *New Photo-Miniature* No. 2 (Old Series No. 207), which can be had at any camera store. We do intend, however, to outline the uses to which the physical-developing method may be most profitably put and to point out a number of things that "chemical" development does better.

Physical development produces rather soft negatives which hold delicate nuances of tone which few ordinary developers get. For this reason the method is very useful in copying paintings where many slight variations of tone must be recorded. It is also useful in anthropology for scientific photography of pottery and other exhumed relics where faithful recording of detail is essential. The process can also be used in photography of highly contrasty subjects, for in a physically-developed negative the densest highlights are never opaque or "blocked-up."

On the other hand physical development will not produce negatives in a hurry, nor will it yield negatives of very strong contrast by mere lengthening of developing times. In fact the control exercised by the operator over the quality of the negative is quite limited when compared to the amount of control possible in chemical development. Physical development tends to shorten the tone scale somewhat and printing papers of fairly strong contrast are often needed to compensate for this tone-scale shortening in the negative.

One of the supposed attributes of physical development is that it produces very fine grain. This is quite true if a low-energy reducing agent is used, together with four or five times the normal exposure. In Odell's method, however, where amidol is the reducing agent, the grain is not as fine as is generally supposed, and the writer has been able to obtain just as fine grain from D-76 as from Odell's process. It is indeed true that almost any of the good fine grain developers that have been recently worked out will produce finer grain than can be obtained through the Odell method of physical development.

In comparison with the physical method, the use of modern fine grain developers is a comparatively fool-proof process and passable results can be obtained even with the use of slipshod technique. On the other hand successful physical development requires pure chemicals (including water), absolute cleanliness, and considerable manipulative skill. Any man who can produce good results by the "physical" process can also produce good results with the "chemical" developers but the reverse is not at all true. It is probable that physical development will remain the tool of the scientist and the careful worker for some time to come but it is doubtful whether the majority of photographers will ever use it successfully.

In conclusion it should be stated that there is one operation for which the physical developer is pre-eminently suited and this is the intensification of fine-grain negatives. Mr. Odell has worked out the technique and it is fairly simple. Furthermore, it is the only method of intensification that does not destroy the fine grain of the negative which is intensified, and the results are as permanent as the original silver deposit in the negative—which cannot be said of some of the other methods of intensification.

Bye Baby Bunting; Mother's Gone A-Hunting

By ALMA MAE BUTLER

SAY, men; the next time you oil that old musket for a day in the timber, consider the advantage of side-stepping the usual domestic fracas by taking the opposer along. Select the bitterest, coldest day when the sleet tears the face to mincemeat. A good, healthy backslide under hoof also is quite commendable. Now, show the little woman the stuff it takes to grapple with a wee, defenseless hunk of fleeting flesh and fur, and by the time those hot mustards and toddies loosen up her sniffles, she'll be subdued and even ask your forgiveness. For what? Why for all those clandestine affairs she credited you with; what else can a woman think, considering the fussing and fuming you men go through just for a jaunt in the open.

Hunting's great sport; I see your viewpoint, indeed. I've chased all day for one quivering hare, then been chased by the farmer to boot. I've lurked countless hours for blackbirds to roost with a decoy from Aunt Nellie's old hat. I've tramped miles for pheasants; given up in disgust, and ended by kicking tin cans.

But the sport that is tops is that musical one, where you toot all day on a whistle. There may be ducks by the millions, but the crafty scoundrels; they're wise to dead reeds a-quacking. Perhaps now and then something darkens the sun; just loons; at least it's a shot. **Here're** orchids for the chap who comes home with the game; I get just iced socks.

Not so long ago some Hollywood lounge enthusiast remarked that a woman should give up sports when she nears the age of forty. It's no enigma to me why I cannot look smart in duds that might weigh a ton. My lips too get blue; my nose drips drops; my boots are just short of tens. With the men it is different; they're all models from Sulka's—Say; that's why more women don't hunt! Ten chest protectors and the prickle of long jeans has an effect on one's sense of chic.

A certain publication recently asked its subscribers for an expression as to what would be their preference were they given but thirty days to live. I am a woman, so this answer I'd give would be discounted as something unreal:

"Thirty days to live; thirty glorious days of sunrises, sunsets, clouds and the joy of appreciation! Then take me back to the last day of October and let me live my span. Let me rummage again through that old scented trunk for the long, snug woolies I so recently wore. A muffler is there, the one worn by old Ezra; his jacket and mittens too. Some boots and a musket are hanging from the rafters; yes, let me have them all.

There's an open spot on the river, with the ice framed about it, where the willows weep moonstones and opals. There's a dark, bobbing mass from which comes strange sounds; winged itinerants en route to the south. A flock of wild geese honk far overhead, never breaking their perfect "V."

Here let me spend each day of my span, awaiting the appointed hour. The whirl of the mallard is music divine; the numbness of winter is God. Oh, give me November in an old makeshift blind, with sight that is keen as steel, and when my hour is come I shall take to thin ice, and be bathed in His glory divine.

The Role of Eastman Background Negative

By EMERY HUSE,
Motion Picture Film Division Eastman Kodak Company

IN THE production of the present day dramatic motion picture considerable use is made of various types of trick and special effect photographic processes. The purpose behind the use of these processes is two-fold; first, the reduction of production costs, and secondly, the attainment of action which might otherwise be impossible to depict. Probably the most outstanding of these various processes is that one normally referred to as the "Transparency Projection Process." While the general technic of this process is quite well known, it is felt that a brief resume could well be given so that the part played in it by film may be brought out adequately.

The mechanics of the transparency projection processes are comparatively simple and involve the use of electrically synchronized camera and projector and a translucent projection screen. This screen is large and portable so that the length of throw and the corresponding image size may be altered at will. This screen is placed between the projector and the camera, the projector throwing images upon the screen from the rear, while the camera in front of that screen photographs the projected image in conjunction with desired studio action taking place in front of the screen. The negative thus photographed shows the composite effect of this foreground action and the projected background. With this process it is possible to make scenes locally which give the illusion of having been made at some distant location. Many scenes, for example, which show persons in a taxi cab or on shipboard are photographed in front of projected background scenes showing street traffic or seascapes. There are, of course, many combinations of foreground and background scenes which can be brought together in a single negative by the use of this process.

While this process is not new, it has been only during the last several years that it has become the most outstanding of the various effect processes. Naturally such a process requires many technical considerations both from the standpoint of its initial lay-out and its final use. It is the purpose of this article simply to point out the part played in the transparency projection process by the photographic films.

The composite scene consisting of the background projection and the foreground action is photographed on the same kind of film that is used in normal motion picture production. This process was made much simpler by the introduction several years ago of the Super-Sensitive type of films. Today Eastman Super X Negative is used to a great extent in normal studio production as well as in the process of photographing composite scenes. It can be seen readily that with a projected transparency as the background it is necessary to carefully light the foreground action without at any time allowing stray light to fall upon the front surface of the projection screen. This calls for much care on the part of the director of photography and offers some handicap to lighting. Fast films such as Super X have proved decidedly advantageous because of the fact that there is sufficient speed in these films to record the lower level of light intensities.

When this process was first adopted for motion picture production a print from any scene which provided a suitable background was used. However, it was soon apparent that there was a marked difference in the photographic quality as depicted in the composite shot between

the projected image re-photographed and the foreground action. The effect was primarily one of increased graininess in the re-photographed background scenes. In this transparency process the re-photographing of the projected scenes used as backgrounds is primarily one of duplication. Since the foreground action is straightforward photography the composite print is in reality a combination of a print from the original negative as it depicts the foreground action and a print from the duplicate which depicts the background scene. The outstanding difference between the two is one of graininess, the background action showing a more marked degree of graininess than the foreground action.

It was felt by photographic technicians that the most logical way to eliminate this "dupe" effect in the re-photographed background scenes would be to use finer grained emulsions when originally photographing scenes intended for background projection. Because of their realization of the need in this field, the Eastman Kodak Company prepared for the trade a special negative film for this work. This film was given the name "Eastman Background Negative."

The characteristics of this film differ materially from the regular Super X negative used in normal production. In the first place it has a materially finer grain which is its primary advantage, but along with this there is a desirable increased contrast which plays a definite role in the quality of the scenes made for projection and re-photographing. This Background film is somewhat slower than normal production negative.

Although details concerning the characteristics of Background negative have been presented in earlier publications it is felt that repetition is in order. In Table I is presented a summary of the various important sensitometric constants of Background negative as well as of Eastman Super-Sensitive and Eastman Super X. The various characteristics of these emulsions can be readily ascertained from this table. There are also included filter factors for several of the more useful filters. There is practically no difference in the filter factors except for the red filters as typified by the 23-A, and for which filter the Eastman Super X has a slightly higher factor than for the other two negatives which are alike in their spectral sensitivity.

Background negative has proved so satisfactory when put to the use intended that now considerable use is made of it for general exterior photography. The lower speed and higher contrast of Background negative has proved to be no disadvantage since exposure and development can be regulated easily to produce the final desired quality. These together with the fine grain characteristic of Background negative makes it a very useful special photographic material for motion picture work.

TABLE I

Film	Super-Sensitive	Super X	Background
Speed	100%	175%	45%
Time of Development for $\sqrt{\quad}$ =			
.70 in D-76 ...	9 min.	11½ min.	6 min.
Filter	Filter Factors		
Aero 1	1.25	1.25	1.25
Aero 2	1.50	1.50	1.50
3N5	4	4	4
5N5	5	5	5
G	3	3	3
23-A	3	4	3

THE CAMERAMAN

By HARRY BIRCH, I. A. 666

CINEMATOGRAPHER or cameraman, it's all the same. But, for the reason of not knowing any better name, let's just call this "unsung hero," as he is sometimes called, plain "cameraman."

Like Hienz's products, there are many varieties of cameramen. There is the good, the fair and the bad. There are those who still like to wear the old "putties." There is the philosophical type, that pretends that his job means little, or in other words, he is doing his company a great service to let them hire him. There is the "diligent" type who really enjoys his work and values his job and is always striving to get something better, a new angle, a new effect, just so it's new.

Regardless of what type we fit and as long as we get the "long green" for our services we are still cameramen. As well as varieties, cameramen are also classified according to their best ability. There is the production man, the newsreel man and the commercial man.

Much can be said about the "production man." He is the man that offers the theatregoer, artistic and beautifully lighted pictures, a man who must try to dramatize photographically the mood or thought behind the scene that is being made. The production man has many aids at hand to call on. His assistants relieve him of many manual troubles, whereby he is free to devote all of his thought to the art of producing a finished scene of perfection. With all due respect to the production man, he should get pictures worthy of praise, when one considers the planning and "setting the stage" so to speak, and the help that is his just for the asking.

On the other hand, the newsreel man has another job. Although a brother of the production man, he is still in another classification. The newsreel man is not as lucky, as to helping hands in his work. It is true that the newsreelers sit around at times when news is dead, but once a story breaks, well, he works and how!

In the old silent days, a newsreel man carried about 50 or 60 pounds of equipment, but with the advent of sound (and the coming of the "tam" which also came about that time), motors, batteries and what have you, well, things just changed. Heavy equipment similar to the same equipment used in the studios by production men, was wished on the newsreel man to cover news assignments. However, the newsreel man had no assistants. He had to get pictures and in fact still does his work like a "one man band." He must be on the job, ready to go on all calls, whether it be morning, noon or night. He must do the job whether it be 110 in the shade or 20 below zero. He must climb to great heights under a boiling sun and wade through snow up to his ears while freezing to the bone. And all this he does alone, except a helper once in a while that he may pick up on a job to give him a helping hand.

The newsreeler of today is to be congratulated for his work. He has no time to worry about setting lights, that HIS shots may be the best in artistic value. He has no one to place or hold reflectors and no crew to supply him with "booster lights" while working in the open. He can't say, "shoot it tomorrow because the light is gone." He must shoot—his job is to get news—and he must get it while it is there to get, regardless of lighting conditions or whether the "stage is set" for his convenience—it is his job to produce under all conditions. The newsreeler can never wait to see "rushes"—when his negative is shipped

to the home office, well, it's just too bad if it isn't right.

When we see newsreels at our favorite theatres, which are 99 and 9/10ths per cent of the time the best part of the show (eliminating Mickey Mouse and Donald Duck), and we see news stories dramatized in one and two minute sequences, little do we realize the hard work of some newsreeler and what he has gone through to get pictures that we really enjoy. Although newsreelers are sometimes referred to as "unsung heroes," which is rather a broad statement, nevertheless they are real cameramen going through much, that we may see the world's news.

A combination of production and newsreel experience is the commercial man, the man that does industrial pictures. Industrial pictures not many years ago was merely a "trip through a factory." But times have changed and today the industrial picture is really an industrial production. Many of our industrial productions are made in Hollywood, in the heart of the motion picture world, by eastern industrial producers. Also, Hollywood stars are being brought east to work in industrial productions.

The cameraman here must be capable of not only producing studio effects similar to Hollywood pictures, but must also be able to deliver high class results from any location which he may be assigned. An assignment may be to shoot the interior of a factory, foundry or coal mine. Or he may be assigned to make an air picture across the continent, or to travel to some unknown part of the globe to secure scenes for an industrial production—like the newsreeler he must produce without the aid of a large technical staff at his beck and call.

Many of the large industrial producers have realized the saving in money and time, and producing better pictures by adding an assistant cameraman in the making of industrial productions. However, a large number of commercial cameramen have been raised in this business, and are very capable, even if they must work alone, they produce desired results. The assistant, however, has proven to be of great help, not only in the studio but also when out on location. In performing his duties, he relieves the cameraman of worries about safety of equipment, scene notes, etc., thus enabling the cameraman to supervise details pertaining to the scene that is to be made.

Some of the industrial firms are even assigning directors on location "shots." In such cases, the cameraman's only worry is that the scene be made with correct lighting and details for photographic technique.

Although the commercial cameraman's job may be classified as being different from that of the production or newsreel man, in reality it is a combination of both. While the production man is glorifying movie stars under perfect conditions of lighting and direction, and the newsreel man is recording historical and news events; sandwiched in between is the commercial man who not only glorifies some movie stars in industrial productions, but also is assigned to photograph historical and news events when they pertain to the business world. Further in the experiences of a commercial man, he finds it rather a hard job to glorify a doughnut, a pie or a cake if he has been handed a bakery script to "shoot"—or to glorify a "hunk" of coal if he is to do a coal mine picture. However, it is all in a day's work and he must and in most cases will "bring home the bacon." His assignments vary; one day he may be in the studio, and then off to do an automobile picture, or a glass foundry, or a coal mine, or a railroad picture; but whatever it is, he must always plan a way to get the best possible results.

The biggest worry to the commercial man, is going out on locations where lights are to be used. The thought,

"can I get enough light," is the bug-a-boo that invariably causes the loss of time in getting a hook-up. Many times he is forced to work with insufficient lighting because of it being impossible to get enough "amps" to carry his lighting equipment. Here he must be capable of getting the maximum light value for what he has to work with. In most cases he can get very good results even if he has been caught in some spot where the "lines" are not sufficient to carry a heavy load.

The commercial man, like the newsreeler has little chances of seeing his "rushes," and when working on location, in a plant that may be in production of manufacturing some item, there is little hope of "make-overs," while in the studio this is possible. When a shot in a factory has been made, the lights and equipment are moved on to the next set-up and "Mr." Cameraman is in a tough spot with the rest of the crew, if an order comes from the home office, "Make over Scene X145—out of focus, or undertimed, or overtimed."

There are many things that can be said about the cameraman, but space will not permit them all here. In the final analysis they are all specialists in their own classification, whether it be production, news or commercial. Camerawork today, however, is more than just putting a picture on the screen. It is an art of dramatizing action, and that demands more than just the knowledge of how to operate a camera.

Like other fine artists, cameramen take their place in the world as being part of a profession, that will forever strive to entertain and educate the masses, as no other medium has ever done—and that is the SCREEN

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Bell & Howell to Distribute "Spirit of the Plains"

A SINGLE-REEL Paramount production made expressly for the school field marks the most outstanding recognition of the importance of that field thus far extended by any major producer.

Based on epic films of the past, the "Covered Wagon" and "Thundering Herd," and embodying several scenes from the current feature release "The Plainsman," this educational short, "Spirit of the Plains," has great school appeal. Two recognized authorities on visual instruction, Miss Mary Clint Irion of the Los Angeles County schools, and Miss Marion Evans, of the San Diego Public Schools, provide the educational sponsorship of the production. Copies were ordered by the Chicago Public Schools for inclusion in their social science film library, immediately the subject became available. The teacher training class in visual instruction at Northwestern University, the convention of the National Association of English Teachers at Boston, and other educator groups welcomed previews of this short on their programs. E. C. Waggoner, Secretary-Treasurer of the Visual Instruction Section of the National Education Association, rented the film for showing in his high school at Elgin, Illinois, immediately upon screening the first 16 mm. print.

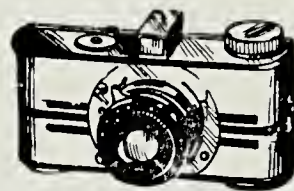
For years, teachers and others have urged the producers to make available the lavish sets and the careful research work on costumes and other detail now repeatedly found in every major feature, for short topical films intended for classroom, school auditorium and general non-theatrical use. The most important previous development of this type was the cutting of a silent short, "In Days of Chivalry," out of the United Artists' "Robin Hood," also by a group of Los Angeles visual instructionists. However, the current production, "Spirit of the Plains," bears the distinction of production and release simultaneously with its mother film, the background and costuming of which is utilized.

This far-reaching step on the part of Paramount will probably turn out to be smart business; for anyone who sees the logical and inspiring topical short will be more than likely to want to see the entire fiction film that treats much more extensively with the same locale and period. This in no way implies that the short subject is to be considered in any sense a "glorified preview." It stands entirely on its own feet, and will in all probability be running for years after the feature film is buried.

The "Spirit of the Plains" follows an original theme by Ralph Jester, that opens just as the Civil War ends. President Lincoln is seen, predicting to his cabinet that millions of demobilized soldiers will find new homes and new lives in the great untamed West. We see the bustle of getting under way on the further shores of the Missouri River, the lonely trek across endless plains, the bloody revolt of the Indian as his food supply is threatened in the slaughter of the buffalo, then the cowboy on the open ranges, gradually confined as steel rails and barbed wire change the way of the West. Finally the combine-farmer of the great wheat lands finds his enemy in the terrific dust storms, battles courageously against odds indicating that the spirit of the plains remains absolutely undaunted.

An intelligent narrative follows the screen story, it is entirely free from the "wise-cracks" that infest most theatrical "educationals," and is varied in pace and content by occasional dialog from the feature, and by songs and orchestral musical background.

The film is distributed through the Bell & Howell dealer and branch library organization.



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THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Section XV—The Assembly of the Picture

The process of assembly of the picture received by television is almost a direct reversal of that used in transmission. In one method, the Nipkow disc which was used for transmission is used, the set-up being similar to that illustrated in Figure 16.

In this layout the neon lamp is located just behind the scanning disc in such a position that its plate completely covers that space which would be viewed by an observer looking through any one of the holes in the disc. Under such a condition the hole nearest the edge of the disc will be just below the top of the plate and the one nearest the center will be slightly above the bottom, so that the effective area observed will remain within the borders of the plate. As the disc is turned by its motor the glowing plate will be observed first through the hole nearest the edge of the disc, then through hole No. 2 and so forth.

In the front portion of the box which covers the equipment an aperture has been cut. This is just the size of the picture to be reproduced. The observer's vision is, in consequence, confined to the area of the picture, the signals for which are varying the pink color within the neon tube as described in Section XIV. Sometimes a magnifying lens is placed in the aperture to increase the size of the image.

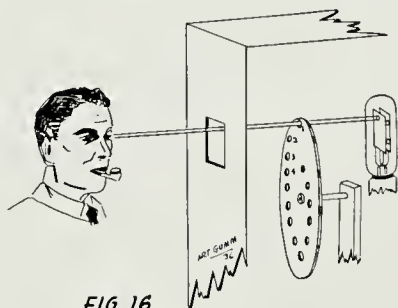


FIG. 16

As the disc is revolved, the holes will sweep across the space back of which is the glowing plate. The observer will see this through the aperture and the disc holes. His line of vision will follow their path as was shown in Figure II, and the glowing screen will be first viewed through hole 1 as it rapidly moves across the plate, then through hole 2 and so on until it has been observed through the last hole. One hole after another will sweep in front of the plate surface until the whole has been scanned, much as was done during the transmission of the picture.

If nothing is being received at the neon tube, a dull pink glow will be seen, but if television signals are being fed to it by its amplifier, the amount of light will be constantly changing as was previously explained. The amount of illumination seen by the observer as he gazes through the aperture will change as the holes of the disc are rapidly turned line by line across the face of the plate.

As viewed through a given disc hole in a certain position, the plate may appear bright. The glow may be less

with the same hole in another position (or with another hole) and will be observed as a darker portion. If these light and dark sections are properly distributed over the picture area the equivalent of the lights and shadows of the picture being transmitted will be seen since the amplifier and the glow lamp are receiving the signals in a definite order.

"Persistence of vision" will give evidence of its presence, and instead of individual light and dark portions of the plate being noticed, a complete picture will be viewed. The reconstruction of the scene being scanned at the transmitter will be complete.

This may be explained in simpler manner by a study of Figure 17. Here the entire picture area as viewed through the aperture has been divided into 35 squares. Hole 1 of a scanning disc similar to that of Figure 9 will travel across the squares numbered 1 to 5. Hole 2 will pass over squares 6 to 10. Hole 3 will pass over squares 11 to 15 and so on.

Squares 1 to 5 are not shaded, and the result will be that as hole 1 sweeps over them, the observer will notice no change in the pink color of the plate of the neon tube back of the aperture and disc. As hole 2 passes over square 6 the same pink color will be shown, but for squares 7 to 9

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35

FIG. 17

the plate will be darker. For square 10 the brightness will again be observed. As hole 3 enters the picture frame, square 11 will appear bright but 12 will be dark, then 13 to 15 will be bright again. Hole 4 will show square 16 as bright, 17 as darker and 19 and 20 bright. Hole 5 will traverse square 21 as bright, 22 as dark, and 23, 24 and 25 as bright. Hole 6 will show square 26 as bright, 27, 28 and 29 as darker, and 30 as bright. Hole 7 will sweep across squares 31 to 35 showing them as bright.

This change from light to shadow and vice versa will appear to the observer to form the letter "E" as can readily be seen. Since any picture can be broken up into sections such as these, each of which has its own degree

of light or shadow, any scene may be constructed in this manner.

Section XVI—Synchronism

In the above explanations it has been considered that conditions were ideal for the transmission and reproduction of the televised picture. There are, unfortunately, circumstances involved which make it possible for much error to enter into the received image. One of these is that involved in "synchronism."

The reception of the letter "E" of Figure 17 has been studied. If the disc at the transmitter is throwing light on square 27 of this figure, and the disc at the receiver is scanning that numbered 10, it is quite evident that the receiving disc is lagging 17 positions behind that of the transmitter.

In this particular case the transmitter disc is scanning a dark square of the original picture. Since there will be transmitted the energy of this spot, a small amount because of its darkness, the receiving set will cause the glow lamp to indicate a dark spot, and the observer will see it as such. But he is actually looking at square 10, and this should be white. The image being scanned at the transmitter is not being duplicated at the receiver because the dark and light squares are not fitting into their proper positions. The transmitter and receiver discs are not running in step. "Synchronism" has not been obtained.

For successful television it is absolutely necessary that the two discs travel at the same identical speed, and that they remain in step at all times. It is also essential that both discs scan the same spots in the picture area at the same instant. If hole 1 of the transmitter disc is scanning a certain position of the image, the same hole in the receiving disc must be scanning the same relative position in the picture area of the plate of the neon tube. It need hardly be added that the transmitting and receiving discs must have the same identical number of holes, since the above conditions would be impossible under any other circumstances.

Figure 18 illustrates the conditions of synchronism desired.

Section XVII—The Effects of Lack of Synchronism

If there is a lag at the receiver end the picture, in the eyes of the observer, would be slow or not advanced enough in the direction of scanning. In the case of a picture in which the scanning was from left to right and top to bottom, he would see it in a position too far toward the left, too far toward the top, or toward both the left and top of the frame area. Small amounts of receiver disc lag will cause movement of the image toward the left. Larger amounts will cause movement toward the top of the frame.

Since there must be the same number of elements at the receiver as at the transmitter, the entire picture will be seen at the receiving end, whether it is in or out of its correct position. Part of the picture may disappear off the left hand side, but it will come in on the right hand. (See Figure 19.) If part of the picture disappears off the top, it will come back at the bottom. (See Figure 20.)



FIG. 19



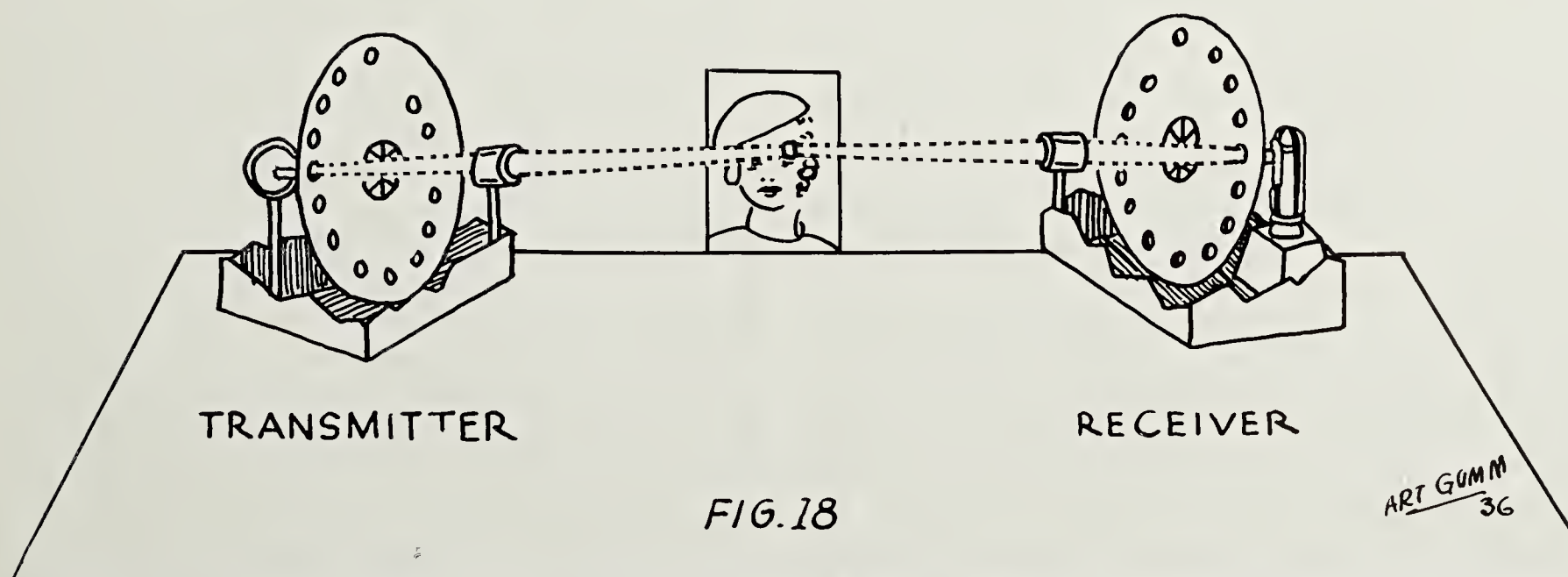
FIG. 20

If the receiving disc leads the transmitting disc directly opposite results will occur. The picture will be moved toward the right or downward on the frame area.

If the lack of synchronism lies only in the wrong relative position of the two discs at the start, the picture will take up a wrong position in the frame but will not move to either side as was the case where either the transmitting or receiving disc leads the other in speed. The pictures will be similar to those of Figures 19 and 20, but will be stationary.

The condition of Figure 19 can be corrected by moving either the lamp or the aperture so that the observer may look at the picture in a different position—more toward the left or right.

In disc receivers the fault of Figure 20 can be corrected by momentarily decreasing the speed of the receiving disc until it comes into step with that of the transmitter.



"The discs are running at exactly the same speed and the holes are in the same relative position. The picture is shown in the center with the transmitter scanning it at the left and the receiver reproducing it at the right. A few holes only are shown in the discs for the sake of clarity, and a greatly enlarged picture element for the purposes of comparison."

Improvements In Slide-Film Projectors

By MARIE WITHAM*

IN SEEKING the perfect complement to the motion film, we come to the younger but equally efficient slide-film—each performing a definite job. There has never been a doubt of the instructional value of still pictures, or slides, whether for educational or industrial purposes. In recent years the need for visual selling and visual instruction has steadily increased and with this demand has come a constant growth of the acceptance of the slide-film.

This medium is known by a multiplicity of names—still-films, strip-films, film-slides, and so on, but they all refer to a short strip of 35-mm. non-inflammable motion picture film upon which has been printed in sequence a series of photographs, charts, drawings, or titles. Two designations are now quite generally used: in the educational field such films are called *filmslides* (one word) or *Picturols*; and in the industrial field *slide-films*; the reason for the two designations being perhaps that in the educational field they take the place of the *glass* slide, hence *film* slide, while in the industrial field the difference lies in the minds of the users between *motion* films and *slide* films. It would be a distinct service to the trade if the SMPE would suggest one standard name as a general designation for such still films as are here under consideration.†

Equipment for projecting such films has been on the market for many years. The first standard *S. V. E.* film stereopticon was originally known as the "Arto." A few years after its aggressive distribution began, two of the largest optical concerns introduced similar equipment: first the Spencer Lens in 1925, and about a year later, the Bausch & Lomb slide-film projector. These were followed by slide-film attachments for use on standard glass slide projectors, which have not proved very convenient or satisfactory. However, new models designed to show slide-films only have been produced very rapidly during recent years, and it is with regard to this trend of advancement that we are especially interested.

In the development of motion picture equipment we have gone from little illumination to greater illumination, whereas the progress in slide-film projectors has been partially the reverse. The 200-watt Picturol projectors were in wide use in schools and industries when a demand came from industry for a small unit for use by contact salesmen for showing the pictures to very small groups of persons. The Society for Visual Education immediately developed the first of a series of very small 50-watt projectors, which, because of their efficiency and low cost, were widely adopted and utilized during all the years of the recent depression. The first and most interesting of these, perhaps, was the self-enclosed *S. V. E.* Jam Handy Pocketer, which actually slips into a man's pocket. The unit was original

in design and size, and was the pioneer in utilizing the T-8, 50-watt, bayonet base projection lamp. This pocket projector served a definite need, and undoubtedly aided in establishing the demand for compactness and portability in projection equipment of this type. Subsequently, half a dozen other 50-watt models were added to the *S. V. E.* line, two of which, like the original, are also self-enclosed units.

The addition of sound to the slide-film permitted larger audiences to be served; with a consequent need for greater illumination, which has been generously supplied in the two latest models of single-frame film stereopticons—the *S. V. E.* Picturol projector model *F*, a 200-watt unit (Fig. 1), and the even newer Picturol projector model *Q* (Fig. 2), a 100-watt unit. As in all standard single-frame film stereopticons, the aperture is the same as that used for silent motion pictures. The model *F* presents some interesting details. Since no shutters are necessary in film stereopticons and because of its compact construction, the illumination of the model *F* 200-watt projector compares favorably on the screen with 400- or 500-watt 16-mm. motion picture projectors (Fig. 1).

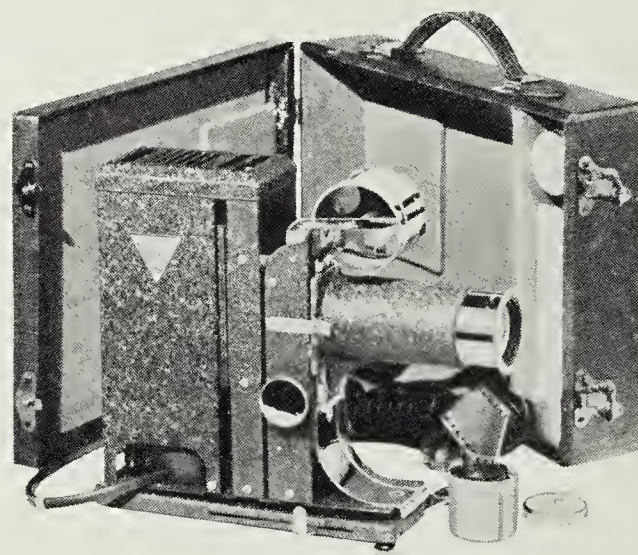


Fig. 1. Model F Picturol projector.

Optical systems used in film stereopticons are very similar to those utilized in motion picture projectors with the exception of the aperture plates and the all-important heat-absorbing heat-resisting element — without which slide-films can not be successfully used if the maximum illumination is to be obtained. Double aperture plates, which act as pressure plates to hold the film flat during projection, assure a sharp image over the entire screen and also tend to dissipate the heat.

The new model *F* 200-watt equipment is the first *manually* operated slide-film projector having a rear aperture glass releasing mechanism, a patented feature used exclusively for a number of years in the *S. V. E.* automatic projector designed for advertising purposes. The purpose of the releasing feature is to protect the emulsion side of the slide-film while it is being moved between the aperture glasses. The release operates in synchronism with the

* Society for Visual Education, Inc., Chicago, Ill.

† The editorial style adopted is *slide-film*.

operating button by means of a cam that moves the rear aperture glass back instantly when the operating button is turned in either direction. The glass is held in a free position until a complete new frame is brought into position, and is then automatically returned to the normal projection position.

The new model *Q* projector embodies most of the important features of the model *F*, but has been designed to take care of smaller groups and therefore utilizes a 100-watt, *T-8*, bayonet base projection lamp; and, due to the location of the light-source with respect to the optical system, a remarkable amount of illumination has been obtained (Fig. 2).

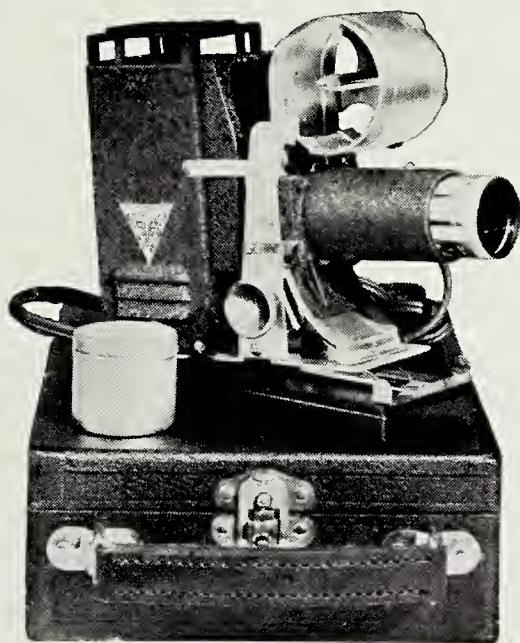


Fig. 2. Model *Q* Picturol projector.

In particular reference to the educational field, in which there has always been a comparison between the *glass* slide and the *film*-slide, it has seemed advisable to consider a picture projected from an area larger than that of the single-frame 35-mm. film. *S. V. E.* has therefore developed a new line of double-frame projectors to meet not only the need for better quality projection in the classrooms, but more particularly, the immediate requirements in the amateur field, in which the use of double-frame cameras, such as Retina, Leica, Contax, Super-Nettle—and the more recent Argus Candid Camera—is now rather extensive. These new *S. V. E.* combination projectors accommodate both single-frame and double-frame slide-films, and also project 2×2 -inch glass slides, or individual slide-films of either size mounted between two pieces of 2×2 -inch glass. They have been designed to provide greater ease of operation, a better distribution of illumination over the double-frame area, and to meet the demand for a more popular priced equipment than previously available. Some of the special features of these two new models are as follows: The model *AA* double-frame Picturol projector is equivalent in many ways to the model *F* previously described, and is also a 200-watt unit; while model *BB* (Fig. 3) is a 100-watt unit comparable to the model *Q*. Both are provided, however, with two masks, one being the standard single-frame aperture and the other a double-frame aperture. The masks are easily interchangeable, so that the projector is instantly adapted to take either the single-frame or the double-frame film (Fig. 3).

The head of the projector is of a swivel design so that it will show either horizontal or vertical pictures by merely

turning the head of the projector to the appropriate position, and it is novel in that it may be swivelled either to the left *or* the right as occasion demands.

The two most important and entirely new features of the equipment are the framing and the take-up. A new framing mechanism has been devised that permits the double-frame film to be brought into view with a single half-turn movement of the operating button. By merely moving a control button, a single-frame film is brought into view by a quarter-turn of the operating button.

Since the new double-frame films of a given number of frames are twice as long as the single-frame films, and due also to the fact that sound slide-film productions run to much greater length than silent, need for a take-up has been created, and this feature is embodied on the new *S. V. E.* model *AA*. It has a threefold purpose: It not only acts as a take-up for the film, but rewinds it ready for projection, puts it into its own container, and eliminates handling the film except at the ends. A new type of film-can makes it possible to attach the empty can to the bottom of the film-track, the film-can acting as a take-up for the strip of film. It automatically winds the film from the outside to the inside, so that the film is ready for rethreading into the top magazine without the necessity of rewinding or otherwise handling the film.

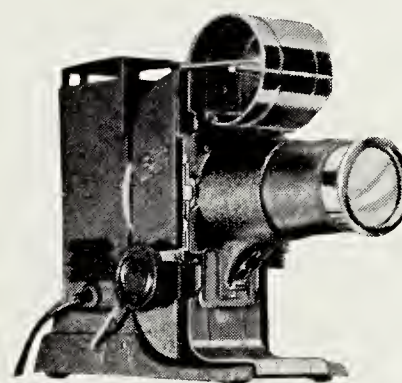


Fig. 3. Model *BB* Picturol projector.

Up to this time the present single-frame slide-films have seemed to meet the needs in the sales field adequately, and it is our opinion that the industrial motion picture producers will continue to prefer the single-frame as standard for their purpose, but that remains to be seen.

However, a great deal has been said recently in educational circles about the desirability of the use of visual equipment in the classroom where such equipment is as easily available to the teacher as a book or a map. The Picturol method provides just that; and this new tri-purpose equipment with a very portable sound-on-disk reproducer will, we believe, adequately fulfill the daily requirements of the classroom teacher for visual-auditory equipment, accompanied, of course, by the existing single-frame and the resultant libraries of educational double-frame slide-films with sound.

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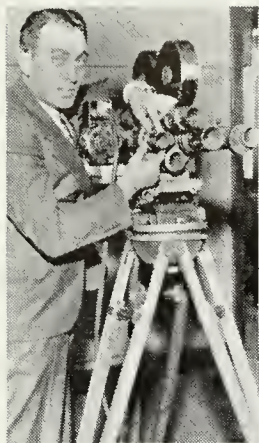
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Cinemabiography

BEING brought up in West New York, New Jersey, which is only a stone's throw from Fort Lee, is probably the reason for my being a cameraman. The earliest companies of the industry which made their studios at Fort Lee and Hudson Heights, used to find our town a very suitable place for their pictures as it was the nearest, fairly good sized town to Fort Lee. This was some twenty years back and the population of West New York at that time was about ten thousand. The tallest building in town stood about four stories high and was quite frequently used to throw dummies down into the street.



Emile Montemurro

Watching the cameramen work at various times throughout the town got me so interested that I made up my mind that some day I would like to crank the camera myself. I made an early attempt at trying to crash the studios at Fort Lee at the age of fifteen but somehow I could never get to the right party, as the man at the gate threw myself and a companion out after we had scaled a high wall. This happened at the old Ideal Studios.

This discouraged me temporarily and after a few days like a lot of other cameramen I quit school when I was ready to graduate. I found a job with the General Chemical Company in their Baking Powder Division—this was during the World War. After working here about a year I quit and found myself a position as clerk in a Wall Street law firm. Not liking books I dissolved my position at the law firm after receiving a job in the Advertising and Publicity Department of Goldwyn Pictures. While trying to learn advertising and publicity, Samuel Goldwyn had decided to merge with Metro and Mayer. Our offices then moved from Fifth Avenue to Broadway at Metro Goldwyn Mayer's offices in the Loews State Building.

With this merger I was made Assistant Traffic Manager and after working at this for six months or so I decided I would like to try the sales end of the business. I soon found myself as a rookie salesman going out four nights a week shadowing the city's high-powered salesman upon his business trips to theaters around Manhattan. Listening to his gifted Lingo in his sales arguments made me feel that this was a pretty tough end of the business. However, two weeks later the Eastern Sales Manager asked me if I would like to work out of Washington as a salesman. Not having been out of New Jersey and New York before, I jumped at the opportunity as it would at least give me a chance to see the capitol.

To make a long story short, someone found out that I wasn't quite fitted to be a salesman and I was sent back to New York, after which I found myself a job with Fox Film Corporation in their Contract Department. This soon lead me to advancement in the Short Subjects Sales Department which put me in direct contact with the Fox News. Whenever a big news event had to be released the Short Subject Sales Manager would send me to Chicago to take care of the mid-west distribution of prints.

After scooping the country with the Kentucky Derby and a few other big news stories I was brought into direct contact with the News Editor of Fox News. In my spare time I started going out with the New York staff cameramen, helping them in every way possible and at the same time learning the camera.

The first man to give me a chance to grind a camera was Al Gold, the Dean of the Newsreel Cameramen. Other Cameramen who helped break me in were: Russell Muth, Carl Larsen, Chubby Lehman, Jack Painter, Fernando Delgado, Bill Storz and Al Brick. It is almost impossible to get a better camera schooling than from these men who made up the New York camera staff of Fox News.

After feeling assured that I was able to handle a camera I terminated my job in the Short Subjects Sales Department. My first assignment with the camera was a Norwegion excursion. This took me to the docks on the Hudson River, where a ship was on its way to Norway with a couple of thousand Norwegians. This was a very simple assignment and it clicked very nicely. This was in the year of 1928 and since then my assignments took me to practically all types of sports events, fires, floods, strikes and numerous catastrophes.

My most interesting assignment so far has been a trip in a submarine at New London, Connecticut, where we submerged under one hundred feet of water, making pictures of men escaping through the escape hatch, wearing the Munson Lung. In order to get these pictures I had to stand in water up to my neck in the escape chamber.

The most thrilling assignment I have had was flying over clouds with fifty-two pursuit planes at Selfridge Field, Michigan.

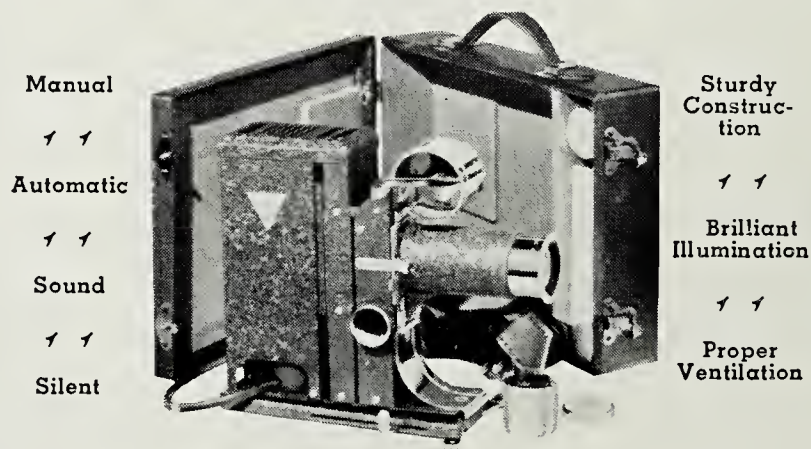
When the silent Fox News was terminated I was transferred to Fox Movietone News. A few months afterward I was sent to Chicago—this was in 1931. Finding Chicago quite lonesome I decided to get married.

Here's hoping my three boys, Dick, Don and James, will carry on where I leave off twenty years from now—possibly behind a television camera. I enjoy my work not only as a career but because it is also my hobby.

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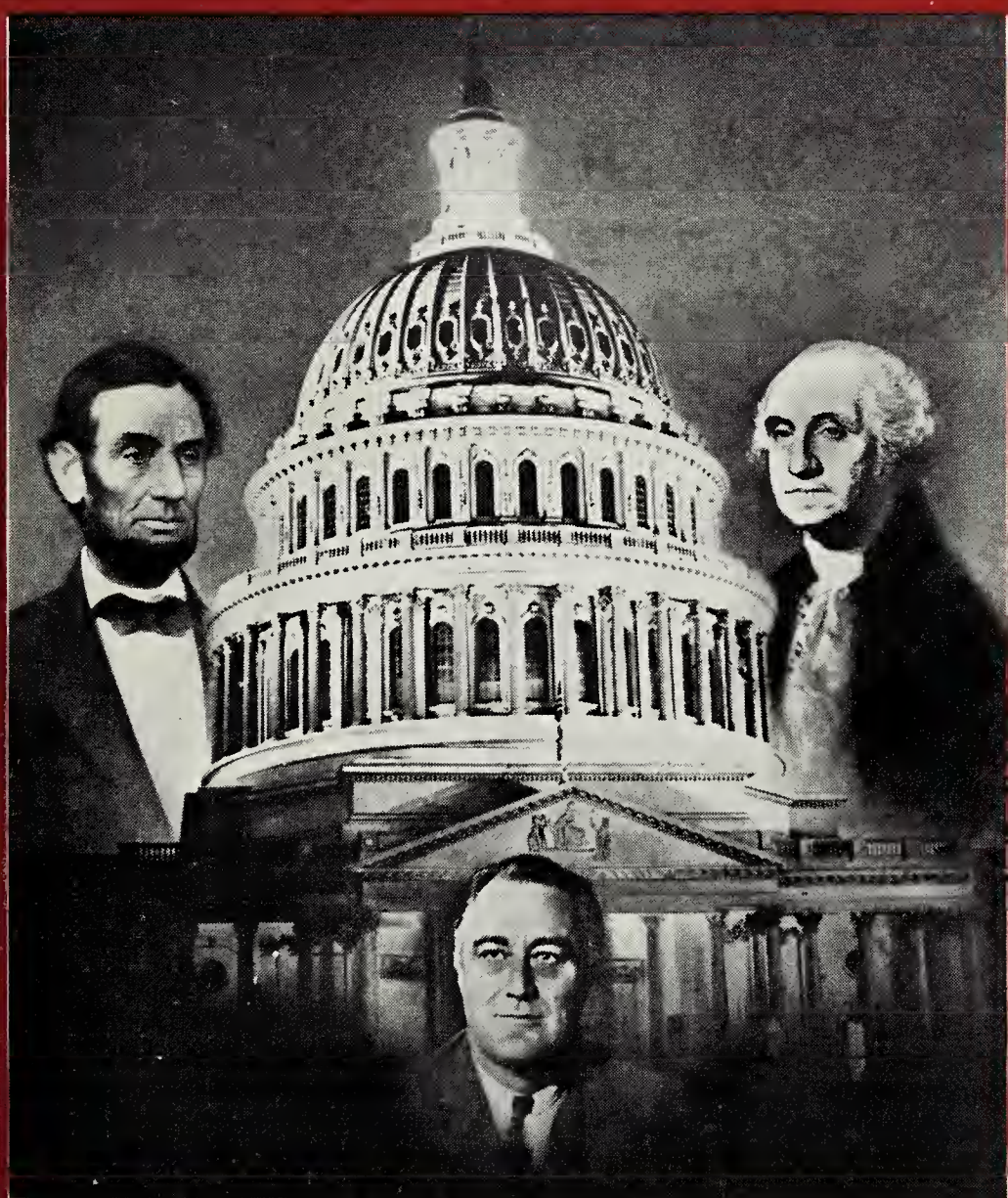
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FEBRUARY, 1937

VOL. 3

No. 2

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+ + + + + + + + + +

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CHICAGO, ILLINOIS

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LOCAL 666

By W. H. S.

Made a hurried dash out to Hollywood two weeks ago with Charlie Downs of Local 644. Left Chicago with a reading of 60° Fahrenheit on the thermometer, saw nothing but snow all the way to California, arriving in Hollywood where I found the temperature in the low forties. Everybody shivering and talking about the unusual weather. In the course of my short visit I enjoyed meeting George E. Browne and his official family, also Herb Aller, Harold Smith, Lew Blix, Eddie Blackburn, George Gibson, Bill Skall, Art Reeves, Si Snyder, Micky Whalen and many others.

The newsreel boys are living up to the best tradition of their profession, braving the flood sections, recording in their cameras the horrors of the great disaster and the heroism of the rescue workers so that the world may see what the radio and newspapers report. In this game there is no dinner bell or clock to punch at 5 o'clock p. m., no comfortable beds to sleep in or warm meals to eat—the show must go on.

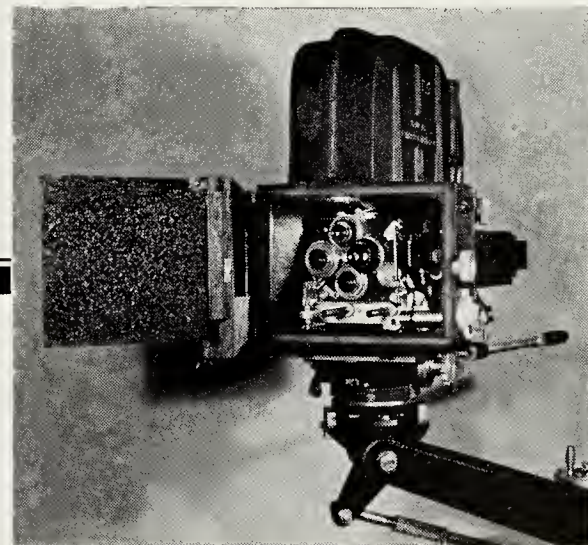
Robert Butler of Richmond, Indiana, driving through snow and flood crashed over an embankment wrecking his car but hired another one and carried on with twelve stitches in his head and cuts and bruises on his arms and legs. Montemurro of Fox, fell overboard when his boat struck a submerged lamp post and was rescued by other cameramen. Jack Barnett was marooned for two days on an Island in the Ohio River before being rescued, Webber Hall and Earl Crotchett of Memphis drove for 52 hours without sleep through the area between Little Rock and Louisville to relieve Phil Harnden for duty in Indianapolis. Norman Alley in a plane making daily pick-ups of the film shot by Universal cameramen working throughout the flood area. Harold Winner shooting from a rubber boat in Evansville, Indiana. Ted Schaefer covering night and day in Cincinnati. Max Markmann was marooned for a while at Jeffersonville. Sam Savitt has not been heard from for several days. Red Felbinger, Orlando Lipfert, Gene Cour and Shorty Richardson doing their stuff in Cincinnati, Louisville and Cairo, Illinois.

ELYSIUM

By J. ROY HESS

If I should snap my Lighter,
 And have it light at once,
 If I would use my Fountain Pen,
 And have it write at once,
 If I had my umbrella
 When caught out in the rain,
 If I could only buy a stock,
 And see it start to gain,
 If I could meet a "Daddy,"
 Whose "Kid" was not so smart,
 If I could meet a Motorist,
 With "Safety First" at heart,
 If I could make a 'phone call,
 And get my number quick,
 Or meet a convalescing friend
 Who wouldn't talk me sick,
 If half these things should happen,
 I'd think it "Kingdom Come,"
 "The Old Greeks had a word for it,"
 They said Elysium.

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"RIVER OVER MY DOOR!"

By RED FELBINGER

Editor's Note: The newsreel cameraman referred to in this graphic eyewitness story was Emile Montemurro, staff cameraman for Fox Movietone News, Chicago office.

THIS is a saga of water . . . the big water of '37 . . . or as I have seen, and am told, the biggest flood in the history of the river . . . it is also a saga of the biggest army of lens snoopers ever mobilized in boots to tell the tale, pictorially.

I sit here in my room with two other men assigned to the big flood. One is an old vet from my class . . . the other is an older vet from a generation past. The older one is sitting at the phone . . . he is calling his New York editor and explaining what he has shot today. He doesn't sound like a newsreeler of my generation but more like a newspaper "leg-man" . . . as he sounds off a list of scenes that he has made this day and has just shipped by the quickest way out of this water-soaked community.

This man has not been on a news assignment in many a year . . . but here is a picture of an oldtimer . . . not a picture of a man coming back . . . but a picture to prove "once a newsreel man, always a newsreel man" . . . he is taking particular delight in outlining his day's material to the big boss . . . all he talks about is the stuff "in the can" and on its way to New York . . . what he is not talking about is how he got the stuff and under what conditions.

There are three of us in this hotel . . . we have no water with which to bathe . . . shave . . . or perhaps even wash our faces in . . . we have no clean linen . . . for drinking purposes we have managed to cajol a quart of the worst "Cookin' whiskey" that ever came out of the Kentucky Hills over the river . . . with some special water for "wash" purposes. I said "special water" . . . the label on the bottle discloses, "exceptionally fine for gout and rheumatic pains" . . . not that we have these ailments but drinking water is at a premium and one cannot be too particular here. So we down a few shots of the "cookin' whiskey." We do so because we can use them . . . We have just come off of the "River" . . . and it is that trip on the River that the old timer forgot to mention over the line to the big boss at New York.

It's been a big long day . . . the water is lashing over the second floor stage of business buildings and homes . . . a twenty mile an hour current is flowing down stream . . . carrying complete houses in its path . . . destruction is on a rampage . . . and in the wake of this roaring torrent rides the biggest newsreel army in history . . . men are spotted from Pittsburgh all the way down to Memphis . . . every angle is being recorded on celluloid . . . and it is a rare treat to be thrown in, once in a while, with a few brother competitors on this story of the big water of '37 . . . Traveling alone and unaccounted for, days at a time . . . no warm meals . . . no regular means of transportation . . . it's a big story and it's gotta be got . . . therefore it's like being with the home folks, when one meets another pal, out there on this water . . . We three were thrown together today by chance meeting at an intersection where the coast guard was launching rescue boats to proceed on missions of mercy back to the deep waters . . . We three were thrown together in the same coast guard boat and made the long tedious trip up stream to record the havoc of the old devil River . . . house tops floated by the coast guard cutter plentifully . . . whole towns were submerged . . . houseboats were tied to roof tops, blocks back from the main stream . . . gas tanks were upset . . . churches and

schools were submerged . . . occasionally we passed other coast guard cutters carrying Red Cross workers and refugees . . . It was as impressive a sight as it was pitiful. . . . Words cannot describe the desolation and havoc of the power of the Old River as it assumes and asserts its supremacy over man . . . but the newsreel cameras keep on grinding . . . the boys are out there along the entire stretch and breadth of the River . . . their pictures will tell a far more powerful tale than the printed word is going to convey . . . these are thoughts running through my mind as we move along . . . I make a few scenes here and there . . . sometimes I watch as the other two grind away . . . we have not had any lunch this day . . . and not more than a cup of coffee for breakfast . . . it is now four p. m. . . . We ask the skipper when he intends to turn back . . . we have pictures . . . but pictures do no good unless you can get them off to New York . . . the skipper does not know . . . perhaps we will tie up somewhere out in this sea of desolation all night . . . so here we are stuck . . . God, if we only had a drink of water . . . water all around but not one drop fit for drinking purposes . . . finally we spot two coast cutters coming down stream . . . we arrange a transfer . . . the story must be shipped. . . . We are making good time now downstream . . . on the cutter we have transferred to . . . the Cincinnati skyline is looming up ahead . . . a few more good shots . . . we are grinding away . . . the boat hits the whirlpools near the big bridge . . . a sudden lurch of the boat throws the newsreeler next to me into the drink . . . all but the ankle of one leg, which is pinned beneath his Akeley camera which has fallen on top of him . . . the skipper swerves the boat, while another guard throws the throttle of the engine . . . the newsreeler is submerged . . . two of us have pinned his leg down with the camera . . . a coast guard hauls away trying to get him back into the boat . . . if we lose hold of him he is gone . . . whirlpools . . . traveling at around thirty miles an hour . . . our boat is drifting fast toward a row of factory buildings . . . it'll be ground to pulp as soon as we hit . . . but this newsreeler must be placed back into the boat . . . or he'll be lost . . . we succeed in getting him back . . . he has been drenched in the icy, polluted waters . . . he is okay outside of slight shock . . . and his camera has been saved . . . then we proceed down a street, under eighteen feet of water . . . as we pass a corner . . . or what once was a Cincinnati street corner . . . in the business section . . . we hit another whirlpool of water . . . our boat is carried sideways with another lurch . . . and we bang into a submerged telegraph pole . . . breaking the tiller off the boat . . . we are floating downstream . . . helplessly . . . while the skipper and his crew work frantically to make emergency temporary repairs, to get us back to safety, a distance now, of three blocks . . . we make a mental note of which telegraph pole we are going to pick . . . as we spy another coast guard crew rushing our way . . . finally we manage to master the stream . . . we are again proceeding but at great caution . . . the skipper is boiling now . . . he is offering to throw an oar at the first newsreeler that aims a camera . . . until we make the treacherous street corners, of which three remain until safety is reached . . . finally he slows down and yells, "Okay, you lugs, go ahead and make your stuff now" . . . we do . . . I am getting a wet foot . . . it's from

the newsreelers clothes who has fallen into the dirty drink . . . then we rush to the hotel . . . we ship our film . . . the newsreeler that has had the ducking manages to dig up another pair of dry pants . . . the wet clothing cannot be sent down to the valet . . . this department is closed for the duration of the flood . . . so the oldtimer is sitting there phoning his big boss back at New York . . . and he is telling him exactly what scenes he has made . . . the other newsreeler, that has gotten wet, is complaining to me about the quality of the "cookin' whiskey" we are forced to drink . . . and I am taking a swig out of my glass . . . figurin' and making a mental note that this really is about the worst "cookin' whiskey" I have also ever tasted . . . but jeez at least you can't get typhoid from it . . . like you do from River water . . . at a time like this. . . . Yes, sir! . . . I guess the old timers are right . . . this is the worst flood in history.

Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

BACK in the so-called "good old days" of this picture taking business, practically all of the effects which appeared on the screen were done directly in the camera on the negative stock. It was sometimes necessary to hold a roll of partly exposed film for weeks before the time came to finish the effect. Naturally the results were not as good as is possible today with the advent of optical printers, high quality duplicating emulsions, and advanced technical laboratory control.

Many cameramen are of the opinion that highly complicated equipment is necessary if good effects are to be had. With the exception of the most intricate effects, this is not strictly the case, because a standard Bell & Howell camera may be used in a very effective manner for securing fades, lap dissolves, the so-called expanding or contracting effects, spin-wipes and so on. All of these effects may be secured fairly easily, directly in the camera, without the necessity of making any changes in it.

For those who desire further information on this, I can highly recommend an article by Mr. J. A. Norling in the latest issue of the *Journal of the Society of Motion Picture Engineers*. (Vol. XXVIII, Number 2, pp 136-157 incl.) Several interesting illustrations accompany the very absorbing text.

Cinematographers wishing to read up on the latest advances in the art will find many other worth-while things in the *Journal*.

Before passing on to other items, I might mention that there is also an article by Mr. E. C. Richardson on recent developments in high-intensity spot lights. You bugs on lighting will find this also in the copy of the *Journal* mentioned above.

The other day, while standing beside a title stand in use by a well-known trailer producer, I had occasion to turn the lens turret over. Ye gods, and odds bodkins, er sompin', I nearly had to get a crowbar to turn the thing around. Such a condition should never be permitted. Even though the camera had been in a cold vault over night, it still should have turned easily.

Just because such a condition is awkward, clumsy, time-eating, and even threatening to a set-up, a lens turret should be gone over once in a while and the nose bearing cleaned of gummy vaseline (or whatever you use). There really is no excuse for little things like this, and I often wonder what the casual stander-arounder thinks when he sees a cameraman wrestling with a thing like that.

(Continued on Page Nine)

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Motion Picture Laboratory Practice

Cinema Digest has secured exclusive permission to print in these pages the new Laboratory Hand Book published by Eastman Kodak Company. This book on motion picture laboratory practice will prove to be of incalculable value to all engaged in the craft, it deals with the laboratory handling of film and related subjects. It fills a real need in the industry. . . . Cinema Digest is indebted to J. E. Brulatour, Inc., for securing this privilege for us.

CHAPTER I

SENSITOMETRY OF PHOTOGRAPHIC MATERIALS

SENSITOMETRY, as its name implies, is very largely concerned with the measurement of sensitivity. In its modern applications, however, it embraces a much wider field, and may be more completely defined as the quantitative measurement of the response of photographic material when exposed to light or other forms of radiant energy. Since the effect of exposure becomes apparent only after development, the quantitative study of development as it affects the response of a photographic material to light is properly considered a part of photographic sensitometry.

Until recently sensitometric methods of studying photographic materials were employed only by the manufacturer for control purposes, by those engaged in research work, or by those using photography for scientific purposes. Of late, however, the need for more exact control in the processing of motion picture film (a condition growing largely out of the development of the sound picture) has resulted in the general adoption of sensitometric control for the purpose of maintaining sound and picture quality. There is now little doubt that sensitometric methods will be employed more and more in the practical use of photographic materials.

Probably the simplest, and certainly the oldest, method of determining the sensitivity, or speed, of a photographic material consists in exposing it so as to produce a series of graduated exposures, either by varying the intensity of the light or the time of exposure in a known manner and determining, by visual inspection, the exposure which produces (after development under standardized conditions) the least visible density. The amount of exposure required to produce a silver deposit which is just barely visible is obviously inversely proportional to the sensitivity of the material; in other words, the less the exposure, the greater the sensitivity.

Even this simple procedure calls for four fixed conditions:

1. A light source of known intensity and spectral composition.
2. A means of producing a series of known exposures on the photographic material.
3. Standardized conditions of development.
4. A method of determining the least visible density based upon standardized and reproducible conditions.

This method gives an indication of the speed of the material only, and does not provide data for the determination of other characteristics of equal, and in many cases greater, importance. To meet the requirements of a well-rounded system of sensitometry, at least two other standards must be added. These are:

5. A method of measuring quantitatively the densities produced as a result of exposure and development under known conditions; and
6. A method of interpreting the results either in the form of curves, numerical constants, or other quantitative means of expressing results.

A complete sensitometric investigation of the characteristics of a photographic material thus involves the estab-

lishment of six distinct standards, each of which must be reproducible with the required degree of precision and must be such as to produce results which, as far as possible, will apply to the conditions under which the material is used in actual practice.

Light Sources

The characteristics of the light source, especially when used for the determination of speed values, are of the utmost importance. Its luminous intensity must be known precisely, and it should be possible to maintain this at a constant value over long periods of time. Since photographic sensitiveness varies greatly with the wave length of the light, the relative proportions of the different wave lengths present influence profoundly the magnitude of the photographic effect for a given visual intensity. A yellowish white light, for example, would result in lower densities than white light of equal visual intensity when exposed for the same time on a blue-sensitive emulsion. The difference in the densities produced with the two light sources when exposed for the same time varies with different materials in accordance with the sensitivity to yellow, and is greater for ordinary (not color-sensitized) materials than for orthochromatic or panchromatic materials. The quality, or spectral composition, of the light source is therefore no less important than its luminous intensity. Not only must its spectral composition be appropriate, but it must be accurately known, constant, and reproducible with the required precision.

The light emitted by all of the sources commonly employed as standards in sensitometric investigations is due to incandescence; in the case of flame standards this is due to the incandescence of the finely divided particles of carbon in the flame, while incandescence in the case of the electric lamp arises from the heated tungsten filament. The spectral characteristics of the light emitted by any of these sources may be conveniently expressed by its color temperature, which may be defined as the temperature of a black body which has the same distribution of energy in the visible spectrum as the source in question.

The color temperatures of some of the various light sources which have been used as standards for sensitometric investigations, as well as of several light sources used in photographic practice, are shown in the accompanying table.

(A) Sources used as standards for photographic sensitometry:

Standard candle	1930° K
Hefner amyl acetate lamp	1880° K
Acetylene (EK Standard)	2360° K
Incandescent carbon (4 w.p.c.)	2080° K
Incandescent tungsten (1.25 w.p.c.)	2400° K

(B) Sources used in photographic practice:

Sunlight (average noon)	5400° K
Skylight	12000 to 18000° K
Carbon arc (hard core)	4000° K
White flame arc	5000° K
High intensity carbon arc (sun arc)	5500° K
Incandescent tungsten 10.0 lumens/watt	2500° K
Incandescent tungsten 20.3 lumens/watt	2985° K
Incandescent tungsten 24.2 lumens/watt	3175° K
Incandescent tungsten 27.3 lumens/watt	3220° K

In the case of negative materials, light sources approximating in spectral composition either average noon sunlight or tungsten may be employed as standards, since in practice negative materials are used with both sources of illumination.

Positive materials, however, are almost universally exposed to incandescent tungsten light, and in this case a tungsten standard operating at the same color temperature is quite satisfactory.

While a number of different light sources have been used as standards,* only two have survived: acetylene gas burning under constant pressure in a specially designed burner, and incandescent electric lamps. Neither of these is a reproducible standard. Both must be calibrated by comparison with certified standards maintained by an institution such as the Bureau of Standards in this country or the National Physical Laboratory in England. All flame standards thus far employed have been found more or less unsatisfactory, and standardized electric lamps are now preferred. However, as both the intensity and spectral composition of the light depend upon the temperature of the filament, and this, in turn, upon the current flowing through the filament, it is necessary to standardize within fairly close limits the supply from which the lamps operate.

Neither the acetylene flame nor incandescent lamps of the type suitable for use as standards approach daylight even approximately in spectral quality, so that filters must be employed when a daylight standard is required.

The Wratten No. 79 filter results in a very fair reproduction of noon sunlight when used with acetylene, or with incandescent standards operating at approximately the same color temperature. Blue glass filters are available also for lamps operating at color temperatures higher than acetylene. These filters are not especially reproducible but are quite stable, and, once standardized for the conditions under which they operate, are very satisfactory. Liquid filters are necessary, however, if daylight is to be matched with the highest precision.*

Sensitometers

The exposing of photographic materials for sensitometric purposes involves, in addition to a standard light source, a means of producing on the sensitive material a series of accurately determined exposures. Since exposure may be defined as the product of the illumination on the photographic material and the time which it is allowed to act, it is evident that a series of exposures may be produced either by varying the *intensity* of the light acting on different parts of the sensitive material or by holding the intensity of the light constant and varying the *time* of exposure. A scale of exposures produced by a variation of time is termed a *time scale*, while a variation of intensity results in an *intensity scale*.

Sensitometers may be divided, therefore, into intensity-scale and time-scale instruments. The latter may be further divided into instruments producing intermittent exposures and those in which the exposure is continuous.

An intensity scale may be produced in several ways, namely:

1. By varying the distance between the light source and the sensitive material for the different exposures.

2. By using different areas of a uniformly lighted source.
3. By reducing the intensity of the light reaching different portions of the sensitive material by means of screens of known absorbing power.

The last is the only method now in general use. The screens are made of pigmented gelatin following the suggestion of Goldberg,* or are photographic copies of such screens, and fall into two classes: (1) the so-called "optical wedge," in which the light absorption increases continuously, and (2) step tablets, in which the increase is discontinuous.

While it is generally agreed that an intensity-scale instrument represents the ideal type, since, in practice, photographic materials are almost always exposed under conditions of variable intensity, no really satisfactory methods of producing intensity scales have yet been found. Intensity scales produced by tablets of absorbing media are useful for preliminary investigations and for routine determinations, but are not very satisfactory for work requiring a high degree of precision because of the difficulties of obtaining reproducibility, permanency, and freedom from selective absorption, which is necessary if visual calibration is to hold for photographic materials, which are sensitive to an entirely different range of wave lengths than the eye. So far as freedom from differential color absorption and permanency are concerned, the most satisfactory tablets appear to be those prepared photographically and developed so as to have no selective absorption.

Another difficulty involved in the use of intensity scales is the length of exposure demanded with a light of average intensity. The photographic effect is not proportional to the exposure—the product of intensity and time ($i \times t$)—except over a small range. Because of this, it is desirable to use for sensitometric purposes intensity levels of the order of those generally utilized in practical photography, so that the exposures will be about the same and the results obtained sensitometrically will be comparable to those which apply in practice. It is not easy, however, to construct an instrument employing an intensity scale with a sufficiently high intensity of illumination on the film to make exposures comparable with those employed in practical work, except in the case of positive material. A higher level of intensity is obtainable, of course, in a time-scale instrument, as there is no absorption of the incident light, so that instruments can be designed in which the illumination on the sensitive material more nearly approaches in intensity the values met with in photographic practice.

Time scales are conveniently produced by a shutter containing a series of apertures which are moved uniformly across the face of the sensitive material in the path of the light. The apertures may be longitudinal slots in a rectangular shutter moving in a straight line, or angular openings in a circular disk which is rotated in front of the sensitive material. The sector wheel used by Hurter and Driffield is shown in Figure 1. It has nine apertures decreasing in angular dimensions from the center outwards; the largest being 180 degrees, the next 90 degrees, the third 45 degrees, etc., each angle being one-half the preceding. When such a disk is placed in front of the sensitive material and rotated, the exposures increase logarithmically by consecutive powers of two. Thus, the relative exposure for each aperture from the outer circumference toward the center is as follows:

Aperture:	1, 2, 3, 4, 5, 6, 7, 8, 9
Relative	
Exposure:	1, 2, 4, 8, 16, 32, 64, 128, 256

*Jones, L. A.: *J. Soc. Mot. Pict. Eng.*, Vol. 17 (1931), p. 498; "Photographic Sensitometry," Eastman Kodak Co. (1934), p. 8.

*Jones, L. A.: *J. Soc. Mot. Pict. Eng.*, Vol. 12 (April, 1928), p. 225; "Photographic Sensitometry," Eastman Kodak Co. (1934), p. 24.

*Goldberg, E.: *Brit. J. Phot.*, Vol. 57 (1910), pp. 642, 648.

In practically all of the earlier instruments the sector wheel was rotated at a relatively high speed and the exposure was intermittent; in this case the total exposure is



Fig. 1—Rotating sector wheel disk of Hurter and Driffeld Sensitometer.

the sum of the separate flashes produced with each rotation of the sector disk. The photographic effect of a series of intermittent exposures, however, is not in general the same as a continuous exposure equal in time to the sum of the intermittent exposures, but differs from it by an amount which

varies with the length of the exposure, the degree of intermittency, and the photographic material.*

The errors involved in the use of time scales in which the exposure is intermittent makes instruments providing continuous exposures highly desirable. Non-intermittent exposures are obtainable with a sector disk by rotating the disk more slowly, so that the exposures required can be obtained with a single revolution of the disk. The opaque portion of the disk may be used to protect the sensitive material while it is being placed in position in the exposure plane. The disk may be started in motion with a clutch connecting it with a driving mechanism operating continuously at a constant speed, the clutch being disengaged automatically after one revolution of the disk, thus stopping in position so that the opaque portion of the disk protects the sensitive material from the light. This mode of operation is feasible, however, only when the time required for one revolution of the disk is relatively long, since it is difficult to start and stop the disk, or to rotate it at a uniform speed, when the time for one revolution is relatively short. Consequently, when the exposure is short, the better plan is to allow the disk to rotate continuously at the required speed, and to make use of a shutter which when opened manually is closed automatically after one revolution of the sector wheel.*

Sensitometers for use in the Motion Picture Laboratory

The Eastman Sensitometer, Type IIb, has been designed especially to meet the needs of the motion picture laboratory. It provides a precise and rapid means of making routine sensitometric tests for the control of development processes, and for other purposes bearing on the production of picture and sound prints of quality.

The particular advantage of the instrument (Figure 2), aside from its simplicity in operation and rugged construction, is its precision. The exposure scale consists of twenty-one steps produced by exposures equal in illumina-

tion and ranging from 1 to 1024 in relative times, each exposure being $1.41 (\sqrt{2})$ times as long as the next shorter one.

In Figure 3, which is a vertical section through the optical axis, *L* represents the standard lamp which is the source of illumination. Two calibrated lamps are supplied, one for negative and one for positive materials. A selectively absorbing filter, *F*, is placed in the path of the light coming from the lamp, in order to modify its spectral composition to the desired quality. A plane mirror, *M*, reflects the light at right angles, thus illuminating the exposure plane, *EP*, in which the photographic material is placed. The rotating cylindrical shutter driven at a constant speed by the synchronous motor, *SM*, controls the time of exposure on the sensitive material. The exposure plane is equipped with suitable guides so that two strips of 35 mm. motion picture film may be placed in position and exposed simultaneously. A platen, *PL*, when pulled down, serves to hold these strips accurately in the exposure plane during the exposure.

Exposures are made by means of the shutter, *S*, which is controlled by a one-turn mechanism. Upon pressure of the release button, *B*, this shutter opens (while the photographic material is protected from the exposing light by the opaque portion of the drum), and closes as soon as all the slots in the drum have passed the exposing plane.

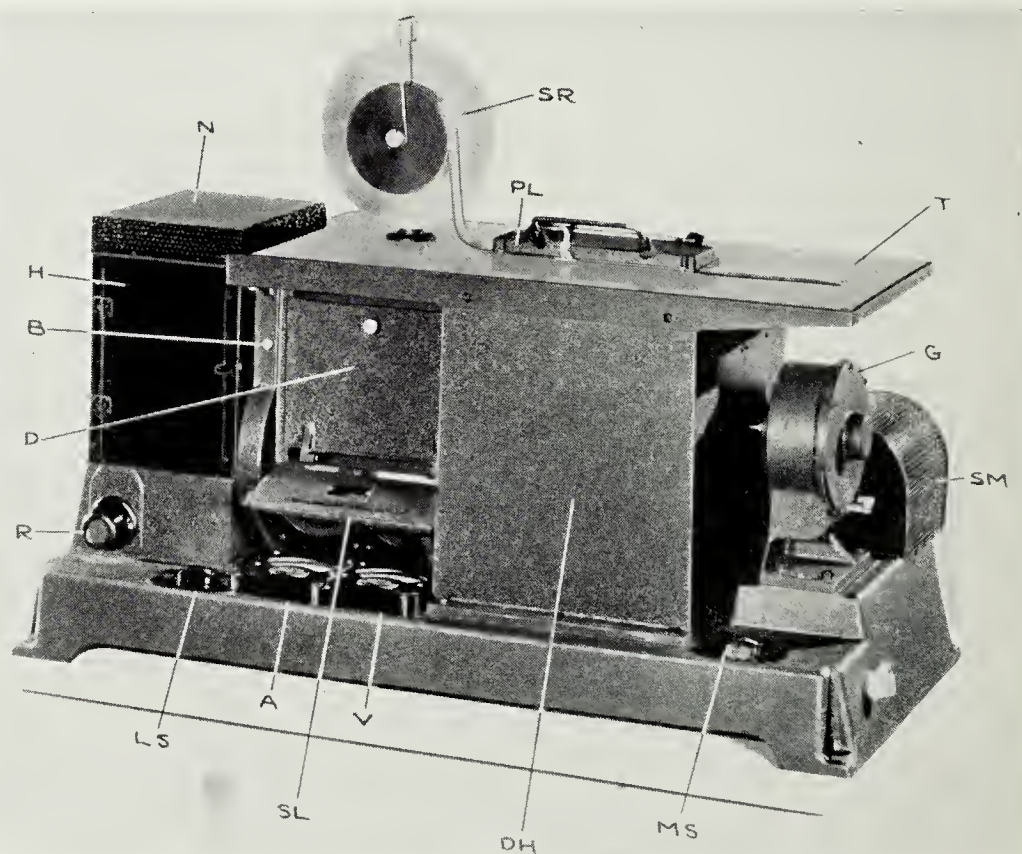


Fig. 2—Front view of Eastman Sensitometer, Type IIb.

Two filters are supplied with the instrument, one for use with negative and the other with positive material, each filter being calibrated in terms of total transmission as measured visually with the light with which it is to be used. The lamp for exposing negative film is standardized for candle power at 2360 degrees K, and the Wratten No. 79 filter used with this lamp raises the color temperature of the radiation on the photographic material to approximately 5400 degrees K. This matches fairly well the color of noon sunlight and provides an illumination of satisfactory quality for the testing of negative material. The filter provided for use with positive materials raises the color temperature of the radiation on the film to approximately 3000 degrees K.

*Jones, L. A.: *J. Soc. Mot. Pict. Eng.*, Vol. 17 (1931), p. 525; "Photographic Sensitometry," Eastman Kodak Co. (1934), p. 35.

*Jones, L. A.: *J. Soc. Mot. Pict. Eng.*, Vol. 16 (1931), p. 514; "Photographic Sensitometry," Eastman Kodak Co., (1934), p. 37.

While not suitable for work requiring a high degree of precision, the simple, inexpensive, intensity-scale instrument shown in Figure 4 is quite satisfactory for routine tests in the processing laboratory.

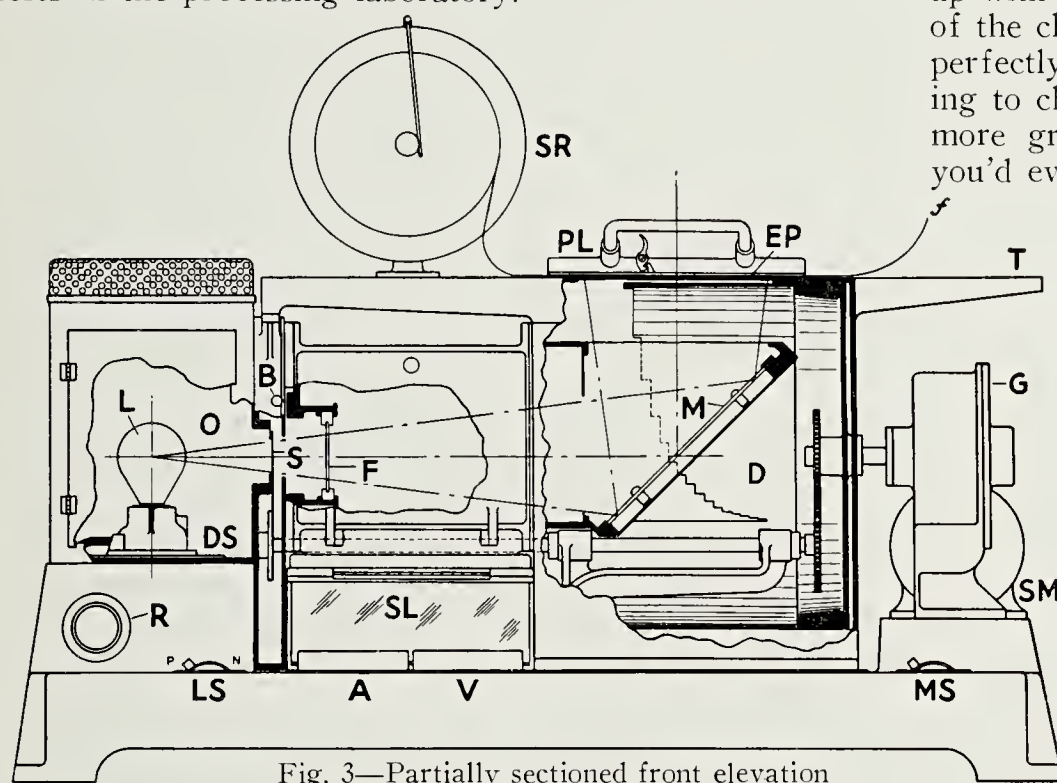


Fig. 3—Partially sectioned front elevation of Eastman Sensitometer, Type IIb.

The light source is a 6-volt, 72-watt standardized lamp operated from a storage battery or from a 110- to 115-volt alternating circuit and a transformer. In the latter case the electrical circuit should include an ammeter to determine the value of the current through the lamp, and a voltmeter to measure the difference in potential between the terminals of the lamp.

The sensitometer strips are made by printing through the step tablet at one end. This tablet consists of twenty-one steps, each $5/16$ of an inch wide, varying in transmission from 88% to .08%, thus covering a relatively wide exposure range. The exposure is made by means of a simple flap shutter controlled from the side of the box.*

*Blueprints containing the necessary constructional details for this instrument may be obtained from the Motion Picture Film Department, Eastman Kodak Company, Rochester, N. Y.

CONTINUED NEXT ISSUE

TECHNICALLY SPEAKING—

(Continued from Page Five)

While we're on the subject of camera care, here's another little item that needs attention:

You know that pretty little bright aluminum bushing which surrounds the rear end of the shutter shaft on a Bell? The one with the cute little radial slots sticking out like spokes from the hole where you plug in a motor or footage counter? You'd be surprised how many of the boys don't even know what that gadget is for! Honest! And it is really a darn important gadget, too.

Listen, Rollo, and papa will tell you what to do with the pretty little gadget: Keep it turned up tight and snug to the right, or else! It is neither more nor less than the clamp for the pressure plate at the photographing aperture, you lug, and if it gets loose and you don't give a hoot, some day you'll be wondering what in blazes makes your focus go in and out.

Not long ago, I casually touched one of these little gadgets on a camera which was set up for shooting a miniature set at close range. Yes, Rollo, it was loose. Here, perhaps, is an extreme case, but on this particular set, depth of focus meant a heck of a lot, and the slightest shifting of the film at the aperture to or away from the

exact focal plane might have made all the difference in the world between perfect results and failure.

But there is a word of caution! The pretty gadget ties up with the screw adjustment which governs the pressure of the clamping plate in the shuttle, and unless you know perfectly well what you are doing, you'd better lay off trying to change the adjustment. Oh boy, you can run into more grief by "monkeying" with this adjustment than you'd ever think possible.

For your own information, you will find a threaded collar on the cylindrical cam assembly right in back of the shuttle, or rather, right behind the shutter of the camera. Well, anyway, it's hard to tell you without a picture, but this threaded collar governs the clamping pressure on the film, and is locked in position by the aforementioned gadget at the rear of the camera. So if the gadget gets loose, it is possible—and probable—that the collar will turn a little and away goes critical sharpness.

What doth it profit you, if you spend a long time setting up for a shot, lighting everything scrumptious, and then let a minor detail nullify all the hard work? So—let's make it a point to keep after the little things, because it's the little things that often make the difference between a cameraman and a cinematographer, if you know what I mean.

When using a motor for the first time on a Bell & Howell camera, there are two points which simply *must* be attended to in order to prevent serious damage to the dissolving mechanism of the camera.

First, after attaching the motor, fasten the hand fade to the camera, and turn it by hand to make absolutely sure that it does not strike the motor or its mounting piece at any portion of its travel. Failure to do this beforehand may result in a stripped gear on the dial plate which indicates the degrees of shutter opening; if the hand fade prevents the complete movement of this plate, something has to give way, and it will almost certainly be the teeth of this plate, which is made of rather soft material. And replacements are expensive! We know of one case which happened through failure to check this important point.

The other item to be attended to is the matter of fixing the brake release button in a down position, so that the brake will *not* trip at the conclusion of a fade out. The simplest and neatest way of doing this is to drill a number 28 hole into the camera case close to the button, which hole is then tapped with an 8-32 thread. A special screw to fit is then made with a wide, flat head of the so-called "fillister" type. When this is turned down, it will force the brake button down and hold it so that it cannot jump up at the finish of the fade out. While this is not nearly so important as the hand fade precaution, failure to attend to it puts a terrific strain on the camera and motor when the brake suddenly goes on.

With the beginning of a return to better conditions, it seems likely that it may be possible to run some "How to Make It" articles in this magazine from time to time. If there are enough letters showing a desire for such a series, I think I can sell the editors on the idea of allotting the necessary funds for making the cuts for illustrations. So, if you would like to have such a feature in CINEMA DIGEST, write in and tell either the editor or myself. I suggest for the first article a simple attachment for the hand fade to limit its travel a predetermined amount. Such a thing is easy to make, and anyone with ordinary ability should have no trouble in following simple, step-by-step instructions. Well, adios amigos. See you next month.

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on Du Pont
Negative



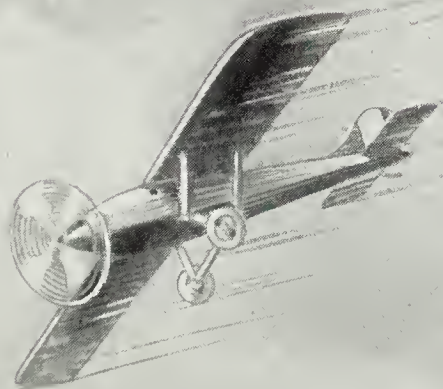
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Screenings, Thither and Yon

By ALMA MAE BUTLER

AT THE moment of going to press, it will be observed that for eight days millions of inhabitants of the United States shall have sat comfortably high and dry, listening tense and horrified to the distressful wail broadcast across the entire nation: "River, Stay 'Way from My Door!"

From Pittsburgh to Cairo along the Ohio, and from St. Louis to the mouth of the Mississippi, thousands of miles of fertile land lie waste and desolate under the relentless overflow of those two bodies. Enterprising little towns that lived solely on the commerce provided by the Ohio and Mississippi Rivers completely are wiped out; those that survive long will be freeing themselves from the precipitation of dirt and debris from the deluge. Industries will have to be rebuilt because of the ravages of the angry current. Cincinnati and Louisville are masses of drifting humanity, conflagration, pestilence and vandalism; flotsam from the Ship of Life.

In what way has Nature been so enraged as to visit this destruction upon a defenseless people?

Two summers ago the nation was scourged by the most serious drouth in history. Agriculturists cringed under threats of a like impending disaster, and the succeeding year it came, laying bare every blade of unprotected vegetation with an "Ashes to Ashes" dictum. Authorities ventured to expound the cause, but the most sound reasoning denounces the eradication of a provident nature's bounty, the buffalo grass.

California is in the clutches of the most severe winter it ever has experienced. Certain sections are seeing their first snowfall there. The entire citrus crop of the state is threatened with destruction. Los Angeles is gray with a smudge from the groves. California fights to preserve its orchards.

Are those millions untouched the favored of the Gods, that they may go on unafflicted, or are they but spared for the next stroke of Fate; or the next; or the next, ad infinitum?

Why seek the answer to the Riddle of Life when so much can be done for the living? The beloved Salvation Army again tinkles its bells; the Red Cross is up at the front. Breathe a prayer for the helpless and needy out there; but let's all do more than just pray.

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All readers of this publication are invited to visit the new quarters of E. Leitz, Inc., in which greater facilities will be had for the demonstration of the Leica camera, its accessories, and apparatus.

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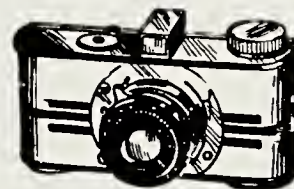
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"GENTLEMEN BE SEATED!"

(Continued from Page Twelve)

somebody tosses a pineapple of tear-gas and the war is on . . . and you better be there getting it . . . because you know the boss will be hanging on the long distance phone asking you just what did you get . . . way before the tear-gas stops smarting in your eyes . . . and this is one war where you dare not take sides . . . the newsreel boys are in the middle of things . . . and some of the fighters in this flare-ups are not always accurate marksmen . . . plenty of the tear-gas stuff has been absorbed in the lungs of the camera lads . . . but the stuff must be recorded . . . and the boys are still going over the top for dear old public . . . then the all night conferences at the Governor's office in Lansing . . . or perhaps up at the Book-Cadillac Hotel in Detroit . . . At Lansing . . . in the staid halls of the ancient State Capitol, dignity and decorum, take a holiday, as not so dignified newsreelers sprawl weary bones on the leather divans outside the Governor's office for a few sadly needed winks . . . only to get up to gulp down a hamburger with onions, which some kind-hearted Western Union boy has so graciously gone out for . . . then back to a few more winks on the cold leather . . . with the camera standing by . . . all set for action . . . finally at three A. M. a state trooper shakes you out of the fitful sleep . . . and tips you off that the Governor is going to make a statement . . . then the rush for cameras and the jockeying for enough room beside the battery of other cameras to get a roll on the big-wigs who have been closeted in conference for eighteen hours now . . . The Governor talks . . . the G-M officials pose . . . reluctantly . . . the Union leaders are agreeable . . . a few shots of posed handshaking . . . and finally at 6 A. M., after having shipped your film, you tumble into bed . . . and before you know it the phone rings . . . New York is on the line . . . and advising you to rush back to Flint . . . the truce is off . . . the boys are at it again . . . the sit-down strike goes on and on . . . so do the newsreel lads that are covering . . . sit-down may sound like a harmless word . . . might even sound somewhat funny to some . . . but the cry of the Flint newsreel army . . . is . . . "gentlemen be seated, . . . and settle your sit-down once and for all" . . . the lens lads want to go home for a short sit-down of their own . . . sit-down at the dining table . . . with the family.

END

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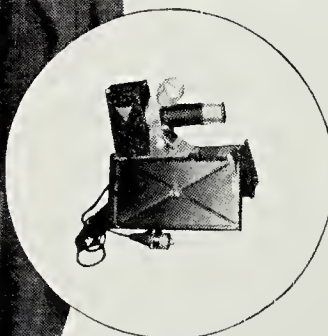
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Cinemabiography

THIS month we present Mr. Oscar Ahbe, born and raised in Chicago, Illinois. Oscar became interested in photography while going to High School and later opened a Portrait Studio with his brother, Bill, at Western and Lincoln Avenues, this they ran successfully for several years. In 1907 Oscar applied for a job at the Selig Polyscope Company Studios located at Byron and Western Avenues, and was put to work in the "Dark-room" mixing developer and later became Chief Developer. In 1909 he went to work at the Essanay Plant in charge of positive and negative developing and manager of the "still" department. In 1913 due to his excellent qualifications as a "still" photographer Oscar was pressed into service as a motion picture cameraman for work on a series of George Ade fables, these features were 500 feet in length and were directed by Harry Beaumont. For five years Ahbe officiated behind the camera with a personnel of people well known to the motion picture profession: Johnny Sietz, Electrician Buddy-meyer, Gloria Swanson, Wallace and Noah Berry, Charles Chaplin, Max Linder, H. B. Walthall, Bryant Washburn, Francis X. Bushman, etc., etc.



Oscar Ahbe

Nineteen nineteen saw the exodus of theatrical film making to the West Coast. Oscar Ahbe joined Rothacker Industrial Film Manufacturing Company where he shot camera for ten years, and never failed to draw the assignments that called for work in coal mines, copper mines, asbestos mines and steel foundries. In 1929 he went into partnership with his brother and Major M. Spoor and the Spoor-Ahbe Film Company was born. After four years he left the organization. For the last four years Mr. Ahbe has been on the camera staff of Jam Handy Picture Service of Detroit, Michigan.

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THE *Hollywood* REPORTER

Vol. XXXVII, No. 36. Price 5c.

TODAY'S FILM NEWS TODAY

Monday, February 1, 1937

HOME OF

TRADE VIEWS
by W.R. WILKERSON

● THE greatest thrill we ever experienced in viewing a picture came the other night at the opening of Irving Thalberg's "Good Earth," during the locust swarm. That one sequence will stand out in our mind as long as we are able to think pictures and to review the great pleasures we have had in seeing them.

The realism with which that masterpiece of production was accomplished surprised us, despite our full consciousness of the thoroughness of Irving Thalberg in all his productions. We knew that big moment in the picturization of Pearl Buck's story would be "given the works," but we could not even imagine such perfect results. Accordingly when those millions of locusts (or grasshoppers or whatever they used) came swarming over the top of that mountain, with the marvelous sound effects accompanying their travel, the cold chills of enthusiasm ran up and down our back.

That locust swarm was only one of the many fine things, the great moments, in "Good Earth." Photographically, it is the greatest job we have ever seen and Karl Freund should be crowned with every award known to motion photography. Directorially, it is perfect. Sidney Franklin tops all his other great contributions to the screen. The cast is something that will be talked about as long as pictures are made. Everyone is perfect in his or her role and, of course, Luise Rainer rates the greatest praise. Her O-lan is the most perfect interpretation of a character we have ever seen. Add to all this the Thalberg production, the Thalberg perfection of every detail, the Thalberg magnificence in recording story in sound and photography.

If we were an exhibitor and had the opportunity to play "Good Earth," we would consider it our duty to the industry in which we worked to get every man, woman and child who had ever been a patron of our theatre (and thousands who for one reason or the other, never attend pictures) in to see this picture during its run. The more that see it, the better it will be for the business, for

(Continued on Page 4)

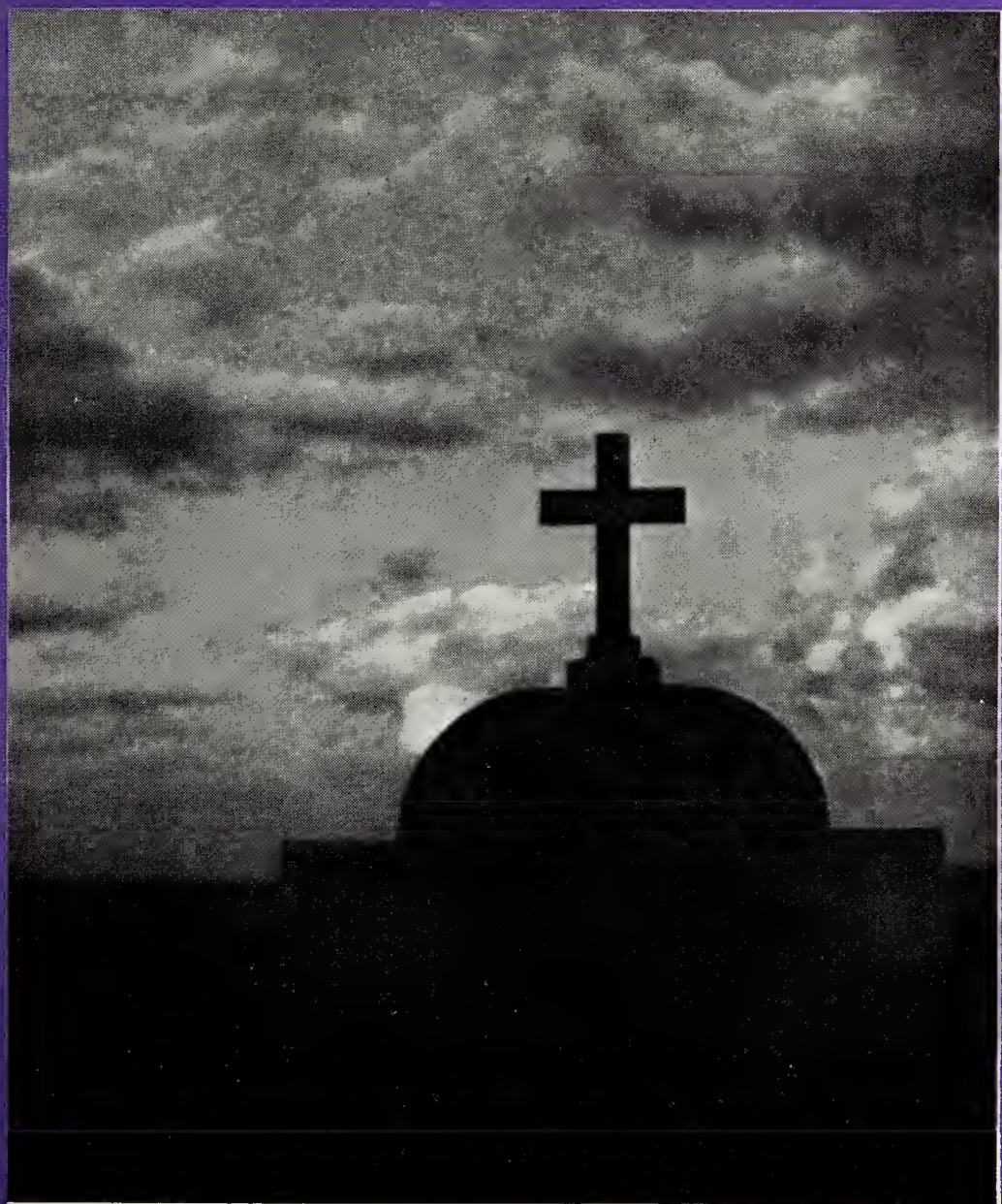
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International Photographers Local 659, I.A.T.S.E., passed a ruling recently barring all still photographers from making pictures in Motion Picture Studios unless they carry Union Cards. This order followed complaints that freelance cameramen were cutting in on jobs belonging to Union men.

National Conference on Visual Education and Film Exhibition will hold their seventh session at the Francis W. Parker School, 330 Webster Avenue, Chicago, June 21st to 24th, inclusive, according to Mr. A. P. Hollis, Educational Director of Herman A. De Vry, Inc. This will be the largest and most representative gathering of Visual Educationalists in the United States bringing together the school and advertising fraternities, speakers, and film exhibitors of national reputation.

Representatives of Film Producing Companies will meet with International Alliance and Business Representatives of Studio Locals in New York early in April, for discussion of working conditions and grievances.

William Skall, Technicolor cameraman, sailed last week for London to take charge of the crew assigned to cover the Coronation of King George VI.

By the way, Harry Birch has just returned from Cleveland where he made two reeler's for Wilding's.

Shorty Richardson on strike duty for Hearst News of the Day.

Charles Geis slated to start production for Burton Holmes, March 22nd.

Earle Sly visiting here from Minneapolis, Minnesota, dropped in to chat.

John Niklasch back from New York.

All the Newsreelers are doing these days is commuting from the Taxi Strike in Chicago to the Motor Strike in Detroit.

Floyd Traynham warming the swivel chair in New York while his boss is on vacation.

"HY'RE YA"

By J. ROY HESS

"Way Back When" the Swain of old,
 Was diffident, and not so bold,
 With hesitance, and manners rare,
 He'd stammer, "Oh my lady fair,"
 With arrogance, to days Swain struts,
 And loudly yells, "Hy're Ya Tutts"

The modern lover won't commit
 Himself, no not a little bit,
 He's debonair, and fancy free,
 And just as cocky as can be.
 The best a girl can get is maybe
 He greets her with "Hy-re Ya Baby"?

In days of old a guy made love
 With pledges, "By the stars above"
 The modern youth his day reflects,
 All sign of sentiment rejects,
 And finer feelings will foment
 With, "Hy're Ya Kid? My Big Moment."

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Zero Hour at Waukegan, Ill.

By MAX MARKMAN

"BZZZ bzzzzz" ——— "Say, did you hear—?"
 "Well, I understand that the 'Sit-downers' are going to ——— yeah, tonight" ——— "Well the Fansteel deputies are all set for 'em to——"

Rumors, rumors and more rumors. Bzzzz bzzzz, secret whisperings, confidential inside dope! The Waukegan Hotel lobby is the scene and the speakers are a group of about fifty cameramen, newsreel and stillmen, and reporters. The reason for all the activity is the Fansteel "sit-down" strike and the fact that the order has been issued to have them ousted. The When! and How! it is to be accomplished, is the burning question among the "Boys" who have been "sitting" for as long as twenty hours at a time outside the plant waiting, waiting. They've been there for over a week now.

A rumor at 9 P. M. about ——— another at 9:30 ——— at 10:00 and this one's HOT! RED HOT!! and the hotel lobby is deserted in nothing flat! Cameramen and reporters dash out! "Don't ask me why, but cameramen and reporters always *dash!*" (Editor, please note.)

Fifteen minutes later at the Naval Restaurant in North Shore, the gang reassembles after taking a look around the Fansteel plant across the street.

"Say, who started this?" ——— "Nothin' doin'." ——— "I'm goin' back to the hotel." A chorus of similar remarks, some of them not printable, complaints about lack of sleep and then the door slams as a cameraman eases in and gives one of those "I got some dope" nods to a pal. They go into a huddle, and no less than twenty competitors nonchalantly, oh very nonchalantly, saunter, within hearing distance, like a cyclone closing in. "Say, pal," sure they're all PALS at a time like this, "What's the word, c'mon spread it?" "Yuh hear that!" ——— "Z, at a fact?" — From one who couldn't get within hearing distance, — "Well, I'm goin' to take a snooze, call me when the shootin' starts," and—the same party moves to the other side of the group and starts to cross examine one boy who "heard something."

By 2 A. M. "rumors," "tips," "inside dope," etc., etc., etc., have been flowing thick and fast. Each rumor causing one or more of the "Strike" veterans to "Pooh Pooh," and then decide that, "Gee, this place is stuffy, guess I'll get a little air." Of course anyone realizes that a camera needs air, too, sooooo, the little box goes right along with 'em!

Three A. M.! ——— "Hey Fellers—on the south side of plant No. 3 ——— Yuh oughta see the contraption on a truck — 'bout two stories high! ——— Okeh, go see for yourself." ——— We all laugh and kid him, 'n then decide it's stuffy inside. Well, sure 'nuff there's the tower-like structure, 'bout six feet square mounted on a truck, and it reaches up to the second floor windows. Sorta like the Trojan Tower we read about in history. Well for once it wasn't a rumor! Back to the restaurant t'get the latest dope. ——— "Hey, when do we get inside the grounds?" ——— "Yeah, supposin' they get goin'—?" ——— "Nuthin' doin', I've been trying and the Deputies said scram!" ——— And so the excitement reaches a peak and wanes only to start all over again.

Most of the boys here are veterans of the six weeks G. M. "Sit Down" at Flint, Michigan, and six weeks at any strike makes one a veteran. So everyone shows his indifference by ordering coffee 'n pic—also making a mental note of say, roughly, seventy-five cents, for the

Turn to Page 7

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Reflections on the Desert

By CHARLES BASS

*"With me along the strip of herbage strown
That just divides the desert from the sown."
Omar Khayyam.*

STRANGE that 7,000 miles of touring in a hard winter drive from Chicago to the shores of the Pacific with countless memories of blizzards, sleet, snow, ice, plains, deserts, mountains, sand-storms, floods, now one can view complacently with the perspective acquired in my home the high spots of this truly adventurous drive across the country.

Not Hollywood with its chrome and neon fronted restaurants . . . nor Los Angeles with its endless streets ending in nowhere and countless autos . . . not the majestic peaks of the Rockies or the coastal range . . . but the high spots of this trip to my mind are the arid wastes of desert in Arizona and California.

Perhaps the desolation with the strange beauty one can find on the desert — whether the sandy type familiar in pictures of the Sahara or the scrubland dotted with sage, mesquite and cactus, or just the immensity of the arid wasteland which can make one wax poetic. Not to forget the yellow and gold sunsets such as are hard to find elsewhere with the eternal range of hills and mountains off in the distance.

Deserts are distinctive. The Gila Desert of Arizona stretching between Yuma and Tucson is a flat stretch dotted with brush and variety of cactus as far as the eye can reach with the giant cactus of Arizona predominating truly picturesque, rising twenty and thirty feet with its strange trunks, growing single and multiple, like arms pointed to the heavens.

A short walk in the Desert, even off the concrete highway, is most interesting. Cactus species in abundant variety in the form of large flowery leaves like palms. Countless varieties of cactus bushes in between the sage and tumbleweeds. One must keep a weather eye open for rattlers, of course, knowing that this is the kind of country they inhabit, but there is little danger in winter, as rattlers are not inclined to be about only when the sun is hot.

A knowledge of botany would be most helpful to really enjoy this country. The giant cactus which is really the symbol of Arizona, dot both the flat deserts as well as the

sloping hillsides. And it is most interesting to know that beyond the boundaries of Arizona this species does not seem to grow.

West of Yuma in California is the Colorado Desert, part of the Great American Desert which you will recall from the old geography in our school days. Here all is sand. Flat or hillocks with a continual wind blowing and swirling clouds of sand everywhere. Very difficult to take pictures of this scene. The finished picture looks flat and under exposed which is merely the sand blowing in all directions obscuring the view from the lens. The sand desert makes one feel that a modern car is more than a necessity because one would be in somewhat of a spot with a break-down for any reason. No cactus here — just a swirling whirl-pool of sand. A picturesque sight and one to be remembered, bringing to mind memories of the pioneer covered-wagon days trekking slowly across the wastes of the desert to the Pacific. Today, crossing the desert is a mere jaunt.

If one will drive West from Phoenix, through Arizona, crossing the Colorado River near Blythe, a thrilling drive awaits you for a hundred miles across the Southern end of the Mojave Desert. A magnificent highway which runs through the cactus dotted desert surrounded with ranges of hills and mighty mountains to heights of 10,000 feet straight up from the sea level. Magnificent stretches dotted plentifully with innumerable species of desert growths.

Death Valley to the north is over 250 feet below sea level. And Salton Sea to the south is over 200 feet below sea level. And on the highway you drive from the sea level rising slowly to an altitude of 3,000 feet and then descending through a magnificent new highway cut through solid rock of the foothills into the valley at Indio with its date palms beautifully luxuriant. Here again is a paradox.

Only a few years ago, barren wasteland until the great experiment of planting the date palm proved successful and one can nibble on fresh dates grown along the roadside.

Through Indio you pass quickly through the desert country into the older irrigated lands which run into and adjacent to Los Angeles. It is difficult for one to believe in driving through Beaumont, Riverside or Corona, that here, too, was a desert only sixty years ago. Land which is green with fruit trees, orange groves and palm trees.

Thus the Desert stole the spotlight from the glamor of Hollywood — at least for me.



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TECHNICALLY SPEAKING

"DOC" GANTZ—Local 666

AFTER that Cinemabiography of yours truly in the last issue, perhaps it would be better that I hide out and stay hid. One of the many things that I did not remember to say was that I am still a cameraman (I hope).

In the meantime, this being the second day of Spring as I sit here typing this, it might be well to once more think of looking over the camera equipment. Good weather is not so far away, and maybe we'll get a chance to use it soon. How long has it been since you checked up on the camera? Are you going to run it this summer with thin winter oil? Better do something about it.

A few days ago I was visiting with Earl Sly (Sly-Fox Films, Minneapolis) and we got to talking about slide film work. I happened to mention a little stunt that I made up for slide film shooting while at Chicago Film Laboratory. It consisted of a still-camera shutter mounted in an adaptor ring and fitted to the Goerz matte-box supporting stand. The whole gadget slides on the regular Bell & Howell "gooseneck" and it really helps in getting even slide film exposures.

The shutter is large enough so that, when wide open, it clears a wide-angle lens. I mounted a small stopping block on the frame of the shutter, so that the speed control pointer can be set at the proper point from the rear, without looking at the shutter. A long wire release, reaching to the back of the camera, completes the rig. In use it is simplicity itself. The trick crank is put on the camera shutter shaft so that it points straight down when the shutter is closed. It is so adjusted that when it is straight up the shutter is open. To make an exposure, the front shutter is closed and the speed set by moving the pointer against the little block. (I used a speed of approximately 1/12 second) and then the camera is slid over, the lens turret turned in the usual way. The trick crank is moved straight up, and the cable release pressed. Then the trick crank is moved to the down position. It's as simple as A B C and the exposures are beautifully even, especially if one is working on copy of uniform size.

The idea is simpler than making up an electric motor and clutch, and could even be used on an animating stand if there was not too much work. Try it out if you have trouble in holding your exposures even when using the trick crank as the sole exposing means.

Once in a while it is a good plan to check the pilot register pins in the title camera, especially if you make many multiple exposures, and the camera is an old one, as many title cameras are. Here's an easy and accurate way to do it:

Take a card with several lines of printing, and, using the regular 4-way aperture vignettes supplied for the Bell & Howell, make a quadruple exposure of the card, giving the same exposure to each quarter of the card. Also, in order to be fair, rewind the film to the starting point before making all the takes after the first. This ensures that the film always travels the same way during exposure.

Develop the film, wax it, and run it on a fairly large screen. Any failure of register will show up at once in relative movement of the four quarters of the frame.

In making direct titles, many attractive effects can be secured by the simplest means. Black-on-white cards are the usual practice, and they are often held flat behind a glass plate negative carrying the decorative background. Plates 6½x8½ inches in size are convenient. In making them, photograph the copy, giving good exposure. Develop in a good non-staining developer, such as elon-hydroqui-

none, but give a deliberate under-development, so that the negative is quite thin. It sometimes helps to develop rather more densely than desired in the final plate, and follow this by bleaching. This last has the effect of clearing up any fog and making a better job.

The effect of wipes can be secured by placing a strip of white bristol board between the plate and the copy. This is then pulled away by an assistant on cue, uncovering the printed card. A variety of effects can be had by using strips cut in various shapes.

Turn-overs can be made. Don't worry about metal parts of the frame showing during the working of the effect, provided they are painted with a pure white paint, such as the new Duco white.

While we're on the subject of titles, let's give some thought to the rigidity of the title stand itself. Many of the troubles of weaving titles are traceable to loose camera mountings. Much of the trouble can be eliminated, of course, by using a motor on the camera. But the real way to get results is to use a camera mount that is really rigid. One of the best title stands I know of makes use of a heavy casting much like a lathe bed. The camera is mounted on a block in the usual way, but the operator has another safeguard in the shape of a lock built under the camera, which holds the unlocking lever of the Bell & Howell hard over, and thus the camera is as rigid as if anchored to the Rock of Gibraltar.

I have made several of these precision camera mounts and locks, and they are well worth their cost, as they make for steadier titles and multiple exposures. It is necessary for me to have the camera, however, to fit it to the block and fit the lock to the camera. When you are overhauling your title stand, investigate the above idea.

A chap I know, who makes a lot of direct titles with sound, has a stunt which saves time and trouble. He shoots the title card or cards to a definite length. Then he threads this still undeveloped film into a recorder, and the fun begins. The sound for the title is taken from a regular phonograph record, but the turntable is driven by a synchronous motor *running backward*. The pickup arm has been moved so that the needle tracks properly, and of course, is started at the *inside* of the record.

The record goes backward, the music sounds like the durndest mess you ever imagined, but because the film is also going backward in the recorder (or what amounts to it) the total result comes out okey dokey. A case of the music going round and round, all right!

If you sometimes wish for a small screwdriver that can really take it—one that is just the thing for lens mount screws and the like—you should go to the nearest sporting goods store and get one of the really swell screwdrivers which are furnished with each Colt revolver. (This isn't a plug for that particular firearm, but they sure know how to make tools.) There have been a few times in my life when I felt like buying a Colt just to have one of their little screwdrivers!

Here's a kink that may come in handy sometime, especially if you ever have to make a negative to any particular scale. It properly belongs in the list of things the aerial mapper must use, but I can conceive times when it might be nice to know for the cinematographer.

In aerial mapping work—in which the writer spent several years—it is imperative to know at what scale the negatives are being made. The formula is simple: $\frac{D}{F} = S$ in which D equals distance in feet from camera to object. F equals focal length of the lens in inches and S the scale to which the negative is being made.

Turn to Page 14

ZERO HOUR AT WAUKEGAN, ILL.

Continued from Page 4

expense account—and then proceed to relax about as much as a mouse in a room full of cats.

Three forty-five A. M. — The door opens—. “Hey, Jimmie, the Gate’s.” SWOOOOSH “L’k out—” and fifty nonchalant sleepy eyed newsmen try to get through the door at one and the same time! They’re off! To the gate, the only way to get inside the Fansteel grounds without being shot! A few stragglers, staggering under the weight of extra cases, etc. No cars permitted inside the grounds, and no redcaps or helpers at hand! We’re in! “When does it start?”

Boom! Flash! Boom! Bang, Bang! Confusion, Shattering Glass as the Gas Shells rip through the windows behind which are the strikers! Some one stumbles and slithers full length in the muddy slime of the yard. “Hey you photogs, shut up! or get out!” — “Nuts, did yuh think I fell on a pillow?” — Suppressed Guffaws, a wisecrack or two from his pals. — “I said, QUIET or git t’ell outa here you lugs!” Booms a voice like a fog horn. Fog horn is very appropriate because we are only a quarter of a mile from Lake Michigan and at 4 A. M. there is the usual misty haze, in fact, it is foggy.

Bang! Boom! CRASH! A clatter of steel and smashing bottles adds itself to the smashing of window panes. The “Sit-Downers” are busy breaking out the remaining windows in a vain effort to ventilate the tear-gas filled plant, but the heavy foggy atmosphere holds the gas like blanket! More Booming of the Gas Guns. Yells and curses from inside the plant. Bottles of acid come crashing down into our midst, bottles and objects of steel thrown in retaliation by the strikers!

A slight breeze stirs—a group of dimly outlined figures, some grotesque in gas masks and carrying queer looking guns, followed by others with cameras, grope their way past. Again a little breeze, but enough to carry some of the gas into our own group. More bottles crash, and add the fumes of an acrid acid to the tear and nauseating gases! We follow the grotesque group. A crashing bottle! a groan, an unsuppressed curse—“G— D— tha’ dirty so ’n sos.” — “Yeah, got me in the eyes”—comes out of the darkness—two figures supporting a third between them, while another dashes a soda solution into the face of the victim, a solution to counteract an acid so powerful that it is used to dissolve metals! It is still dark, the blackness that comes just before dawn!

Now the sympathizers outside the fence are getting the range and rocks and various forms of “confetti” are whistling overhead and landing all around us. The cameramen are being pushed aside by guards in the retreat! The still men cut loose with their flashlights and the newsreelers move up with their flares. The deputies step in and give orders in no uncertain terms—“cut out those damn flashlights, ’n no flares!” “Wanna make targets outa us?” — “Watha’ll, we’re taking as much chance as you ’n we ain’t got any guns.” (Seems that the boys just will be careless of their grammar at moments like that.)

“Yeah,” growls a figure coming toward us with one of those repeating gas guns to his shoulder. “Get back, ’an shut up ’er I’ll let yuh hava dose uh this!” — We don’t back up, but we do notice a new barrage of “confetti” coming over the fence and we DON’T yell duck to the figure menacing us with the gas gun! — “Gee, I hope they hold out until we get enough light to ‘shoot.’” comes from the newsreelers. — “Yeah, we been here a week waiting for this, ’n here it is popping right under our noses ’n the so ’n sos won’t give us a break!”

Turn to Page 13

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DEATH GOES TO SCHOOL

By TAYLOR BYARS

TRANQUILITY and abandon were prevalent in the Century Room of the Hotel Adolphus here in Dallas as we prepared for a joyous evening to the tune of Will Osborne's music. But it was cut short when I received a wire from the New York office to cover the New London school disaster. Within the hour we were on the highway, still in a jovial mood, talking of "sealing wax and cabbages and kings," little realizing the magnitude of this assignment. Our frivolity ceased, however, as we plunged into one of the most horrible of American tragedies.

We were still 70 miles from the scene when an array of red lights greeted us down the highway. Shortly, it sped passed in the form of a screaming ambulance. We encountered an unending race of them from there on. As we passed a small town filling station a long black hearse with its curtains drawn was stopping for gas. Fortunately, the news had not filtered out to the world sufficiently to crowd the highways with the idly curious and, I believe, those who finally did go out of curiosity regret it, for what they saw was almost unbelievable and unbearable.

As we drove up on the campus of the once richest and most elaborate rural school in the world, we were greeted by the lumbering of tractors and huge trucks, the blasting of loud speakers directing the rescue workers and the shouts of men working under the hastily installed arc lights from the nearby oil companies.

The newspapers cannot exaggerate, the radio cannot sufficiently describe and the newsreel can only hint at this awful thing, for even in motion pictures there is not that aura of suspense, of heartbreaks and pain, the air is not filled with the pitiful cries of childish voices, many of which ceased before frenzied hands could reach them through the barrier of debris.

A rescue group was at work in every room or rather where every room had been. Exposure was bad by the arc lights and I had to get as close to the groups as possible without interfering with the deliverance of mercy. It placed me side by side with human emotion, with anxious fathers, side by side with the dead and dying. Many were the tiny souls who seemed to fight for life and to live just long enough to have the steel and brick lifted from their broken bodies—just long enough to feel themselves free again. Then they seemed more satisfied to breathe their last. Such was the case of a little curly head protruding from a pile of bloodstained plaster and pine. Her father had worked frantically through the afternoon and far into the night with the many others in his effort to locate his child. She was still breathing as his huge arms, oily from yesterday's work, lifted her as gently as her mother had probably done when she was a baby. She knew her father; she was once more in his arms and her little lips quivered as her blonde locks fell back. He would not put her on the waiting stretcher but held her close as he carried her out of the debris and toward the field hospital. A doctor followed and sympathetically halted him as he indicated in-

stead the small frame building with a sheet over its door that was serving as a morgue. The little girl was dead!

He was not alone. There were more than four hundred, each a pathetic case. Here human emotion was at its height. Amid the growling of tractors biting into the earth and the straining of oilwell winches tugging at the tangled mess, single men moved concrete slabs and steel framework that under ordinary circumstances would have required the strength of several men but they moved it without notice for below them somewhere in this mass of steel, mortar and flesh was the one thing that animated their existence, the inspiration of their daily labors in the oil fields—their children. It is hard cranking, brother, when you know that at your very feet and all about you are helpless little fellows sandwiched in tons of wreckage. It makes you want to quit your guns and do your bit.

Dawn brought a driving rain accompanied by thunder and lightning to add to the morbidity of the scene. Undaunted, the rescue workers continued. They were in the basements now with no hope of finding life for down there pressure had torn the victims asunder.

To make a shot, I climbed one of the oil derricks that stands on the campus. From up there the forest of derricks spread in every direction making the scene below seem infinitesimally small but this entity had been large enough to take the very foundations from the men who had generated the countryside. These strong-hearted and brawny men, trained in labor's toughest school, had heard the explosion that blasted the life from their loved ones and rushing from their work on the rigs and pipelines found their every dream, hope and life's ambition settling in the dust cloud that hung over the heap of timbers, brick and mangled children.

Indeed, a comforting hand was the quick action of the American Red Cross, the Salvation Army and the response of the good neighborhood called Texas. So systematic was everything that it seemed to have been prearranged for days.

As we packed the cases amid exhausted men and the drawn faces of horror-stricken women, I could not help but wonder what the destiny of New London would be after some four hundred newly turned graves studded these oil-soaked hills.

This I do know . . . that for many a day every man who spread a tripod on that job will get a lump in his throat when he hears an entreating voice in childish treble.

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THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Section XX—Electricity and the Atomic Theory

Many years ago a professor was examining the members of his class in the theory of electricity. He noticed a student, who, under the influence of the drowsy atmosphere of the schoolroom, had almost dozed off. Addressing this individual, he said, "Mr. . . . , What is electricity?" The student shook himself awake and stammered, "I-I-I did know, sir, but I'm sorry to say I've forgotten."

The professor sighed, and said more to himself than to anyone else, "Oh, dear! The only man in the world who knew what electricity is has forgotten all about it."

Since the time of this story, the exact nature of electricity has been more or less satisfactorily determined. Many definitions have been given, among them one based on the electronic theory which reads, "Electricity is the movement of electrons under the influence of some force operating either externally or internally."

But such an answer to the question would bring forth from an intelligent student another query, probably more difficult to answer than the first, namely, "What are electrons?"

There would be some difficulty in describing them, for although they have been weighed, counted and put to practical uses, they have never been seen.

Electrons definitely do exist as particles of matter, but an explanation of what they consist must depend on a reference to something of which science possesses a very extensive knowledge. It is known that all matter is made up of extremely small particles. Everyone, consciously or unconsciously, has seen that this is true.

A rock or a piece of sugar or salt is made up of bits of small granular matter, and steel of original tiny particles of carbon and iron. Any of these solids can be ground and reground until the particles have reached such minuteness that the dust can be observed as being composed of individual small pieces of matter. Air and the various gases are made up of pieces so small that they cannot be easily recognized. There must be an ultimate end to this reduction of size beyond which it is impossible to go. When this point is reached the tiny particles will be so small that they cannot be seen even with a microscope, and yet it is definitely known that they exist.

Where the elements of any matter cannot be seen, they are difficult to describe. The fine grains in cement can be seen and described, but the particles of which air is composed are invisible and there is, in consequence, some difficulty in telling of what they consist.

It can readily be seen that a lot of tiny particles will form a solid mass like a rock, and therefore, it should not take a great stretch of the imagination to visualize air as being made up of something similar. In fact, any gas will be found to be made up of particles of some type. These will be of a different nature to those of concrete or sugar or any solid matter, but the gas will still be made up of them.

If there were no difference between the final minute particles of the two materials each might be some other substance than what it is. In fact, there would exist only one type of matter. The natures of these particles determines the eventual substance which is formed.

The various tiny particles of which all matter is composed are known as ATOMS, but there are not the ulti-

mate in fineness. Their nature and arrangement determine what any substance will be, but since all materials are not identical, the indication is that the atoms themselves must be composed of still smaller particles. If this were not so, the atoms in a piece of concrete would be identical with those in hydrogen gas.

An investigation of the atom itself in an effort to determine the smallest particle of matter, and therefore the nature of the difference in substances should therefore be next in order.

Scientists have made this subject one of vast study. They have delved so deeply into it that they have even split the atom to determine its constituent parts. They have determined that some of the atoms are so small that 400,000,000 of them, if laid in a line, would cover only an inch of space. They have learned that those of different substances have different weights, and that each different substance contains atoms made up of an individual quantity of still smaller portions. The atom, therefore, is not the smallest particle of matter; it is made up of literally thousands of tinier particles. These are known as ELECTRONS.

Section XXI—The Electron

Within the atom there exists a very complicated arrangement. One theory of this is that around a central nucleus there stand thousands of electrons in circles much like those seen when an onion is cut. All of these are in a constant state of agitation, but remain in their individual locations at all times.

Another and more popular theory likens the scheme of things to an overripe plum hanging on the branch of a tree. Buzzing around it on fixed paths and at definite speeds are hundreds of flies, each keeping its position at a definite distance. If it be imagined that the plum is the "nucleus" of the atom, and the flies the electrons, and that the farthestmost fly is two or three large fields away, and the others between this and the plum, a good idea of the arrangement within the atom, and the proportionate scale of the distances between the electrons and the nucleus may be obtained.

Notice that there is considerable space between the various flies and between the flies and the plum. One of the most astonishing things about the atom is that this also applies to the electrons and the nucleus. There is definitely more empty space within the atom than there is solid matter. If the atom is visualized as a central core round which are revolving great quantities of electrons, each of which travels in its own orbit and is held to the center of the system by some form of attraction, an idea of its construction sufficient for our purposes will be obtained.

If the atom is considered as a complete universe, the electrons which enter into its composition can be considered as fixed, more or less permanently, to it. These can be jarred away from the central group, in fact great quantities of them are being dislodged every minute of the day. They are customarily travelling in their duly appointed paths, but if the atom be violently disturbed, some of them can be shaken off. For instance, a continuous stream of electrons is being liberated from the heated cathode (or filament) of the vacuum tubes which are used in radio sets and amplifiers; pieces of metal under the influence of heat cause the atoms to become agitated,

and electrons are freed and go off into the surrounding medium.

Fundamentally, all electrons follow their regular paths within the atom. Once freed from the influence of the atom by some disturbance, however, these become exiles and by proper means can be persuaded to travel in definite directions and to given destinations by the influence of certain forces. If a quantity of them are liberated and forced to travel in certain directions there exists a steady flow which can be compelled to move in a group. They form, in effect, a current.

But what is this current? It is a current of *electricity*.

It was previously stated that one definition of electricity was "the movement of electrons under the influence of some internal or external force." As shown above, electricity can be produced by the liberation of a steady stream of electrons which have been persuaded to follow some definite path by some "external or internal means." The strength of this current will depend on the number of electrons liberated and the power of the persuasive force used to move them. The current might be measured in these terms, but since the quantity of electrons is very great, and consideration must be given to both this gigantic figure and the persuasive power it is much more practical to use the old time unit, the *ampere*, which is just another way of saying "... millions of electrons per second under the influence of ... persuasive units."

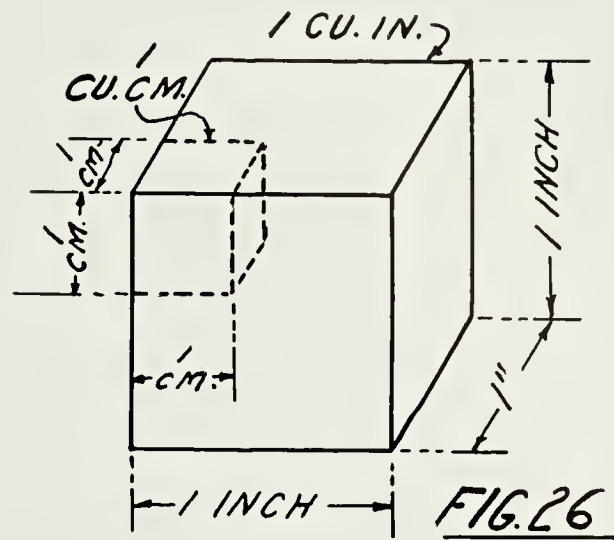
When the units of electric current are considered, it is customary to think only of the *ampere*, the *milliampere* (one-thousandth of an ampere), and the *microampere* (one-millionth of an ampere), the last two of which are often used in radio and amplifier work, but another unit, the *coulomb*, which is not so often used, must not be forgotten. The coulomb refers to so many electrons in a group, whereas the ampere refers to their rate of flow. The difference is similar to that between *quarts* and *quarts per second*. As the science of ELECTRONICS advances, the term *coulomb* will be heard more and more often.

Certain figures to establish the sizes of the atom and the electron have been given by investigators. Sir Oliver Lodge, an English scientist, wrote a book entitled "Electrons" which covered the whole subject most thoroughly. Although written more than thirty years ago, at a time when the subject was not of great practical importance, it would be difficult to improve on this most excellent work.

He says: "In the solar system the diameter of the earth is $1/24,000$ th part of the diameter of its orbit around the sun. If the earth represented an electron, an atom would occupy a sphere with the sun as center and four times the distance of the earth as radius." He also says: "The volume of the atom is 10^{-24} cubic centimeters; the aggregate volume of all the electrons composing the atom is 10^{-34} cubic centimeters, and consequently the space left empty is 10^{-10} or *ten thousand million times* the filled space." And, as a final thought: "In an atom of mercury there are 100,000 electrons."

Since Sir Oliver wrote in the scientific terms of the metric system, Figure 26 will show the relation between the cubic centimeter and the familiar cubic inch. Here the solid lines indicate the cubic inch and the dotted lines the cubic centimeter. One cubic inch contains 16.38 cubic centimeters. In the preceding paragraph the exponential signs after the 10's are merely abbreviations to save

writing great strings of 0's. 10^4 simply means $10 \times 10 \times 10 \times 10$, or 1 followed by four zeros or 10000. 10^{-24} indicates a fraction with a denominator of 1 followed by 24 zeros. This is the same as a million million million millionth part of the cubic centimeter mentioned above. The extreme minuteness of the electron can be realized by the size of the figures, or rather by the smallness of the fraction.

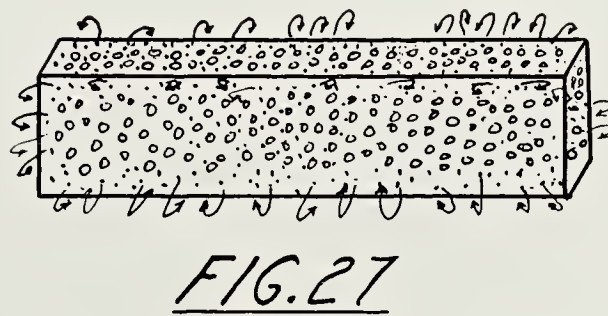


Section XXII—The Movement of Electrons

One of the most practical ways of moving electrons is by means of *heat*. An example of this lies in the metallic filament of the radio tube.

If any substance is heated there is an immediate violent agitation among the atoms of which it is made. They move in all directions, collide, bounce against each other, and even leave the material entirely. This agitation of the atoms has a reaction on the electrons, and some of these are dislodged in the confusion. If a supply of electrons were needed, this heating of a substance would provide it. There are, of course, some materials from which the electrons can be released easier than others.

Figure 27 shows a piece of metal, in open air, in which electrons (shown as dots) are leaving the atoms (shown as small circles). However, notice that the electrons are returning to the atoms. Electrons liberated in open air cannot travel very far into the surrounding medium. The



reason for this is that they meet other atoms, including those of the air, and find their progress blocked. They may be absorbed by this opposition to their progress, or they may return to their original atom or join themselves to any other which has lost some of its original occupants. The liberation of atoms and electrons in open air is therefore not satisfactory to the scientist who would use them in his work, since most of them return to the original source immediately after the agitation which first set them free.

Motion Picture Laboratory Practice

THIRD INSTALLMENT

The D-log E Curve

It is usual to express the relationship between density and exposure as determined from the densities of the sensitometer strip in the form of a curve. When density is plotted against the logarithm of the exposure, a curve of the type shown in Figure 8 is produced. As this graphical method of representing sensitometric data was originated by Hurter and Driffeld, such curves are commonly referred to as "H and D curves," although the terms "characteristic curve" and "D-log E curve" are used frequently.

A considerable portion of this curve, in the case of most photographic materials, is represented within the limits of experimental errors by a straight line. The limits of this portion are shown in Figure 8 at *A* and at *B*. The exposure range within these limits constitutes the region of correct exposure; for, throughout this range of exposures, density is directly proportional to the logarithm of the exposure. Therefore, for the correct proportional rendering of the various brightnesses of the subject in the negative, the camera exposure must be such that the exposures produced by the light reflected from the different parts of the subject are all within the straight-line portion of the D-log E curve. In other words, the deepest shadow in the subject must be represented in the negative by a density which is not less than that at the beginning of the straight-line portion of the curve (*A* in Figure 8), and the strongest highlight by a density not greater than the maximum on the straight-line portion of the curve.

The lower portion of the curve, extending in Figure 8 from *A* to *C*, is known as the period of under-exposure, or as the "toe." There is no constant relationship between density and log exposure within this period, but on

the contrary a steadily increasing density difference as the exposure increases. The third portion of the curve, lying to the right of *B* in Figure 8, is known as the period of over-exposure, or as the "shoulder." In this region, as from *A* to *C*, there is no constant relationship between log exposure and density but in this case the density differences decrease with increasing exposure, finally reaching zero at *D*. This point *D* represents the maximum density obtainable.

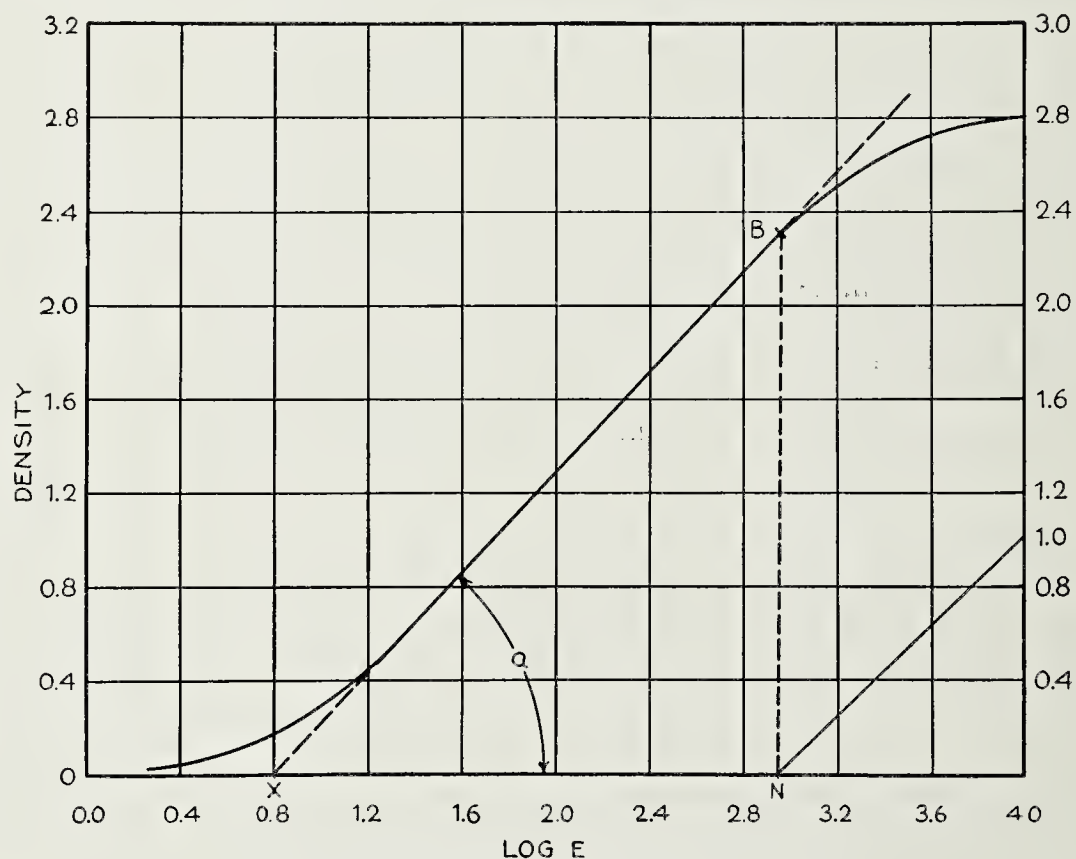


Fig. 9—Graphical method employed for the determination of gamma.

Gamma

It is obvious that the greater the difference in the densities for any two exposures which lie within the straight-line portion of the D-log E curve, the greater the gradient or slope of that line. Now, as the effect of development is to increase, proportionally, all densities lying on the straight-line portion, it is evident that as the time of development is increased the gradient or slope will increase also. The slope in the straight-line portion of the characteristic curve is thus an indication of the extent of development, and was termed by Hurter and Driffeld the development factor, and designated by the Greek letter γ (gamma). Today it is usually referred to simply as *gamma*.

It is evident that by erecting a perpendicular from any point on the log-exposure base to intersect with the straight-line portion of the curve a complete right triangle will be formed if the straight-line portion is extended to intersect with the log E axis. In Figure 9 this right triangle is contained in the letters *BNX*. In the right triangle *BNX* the length of the altitude, *BN*, and the base, *XN*, are known. The angle at *N* is 90 degrees, as *BN*, was erected perpendicular to the base, *N*. The angles at *X* and *B*,

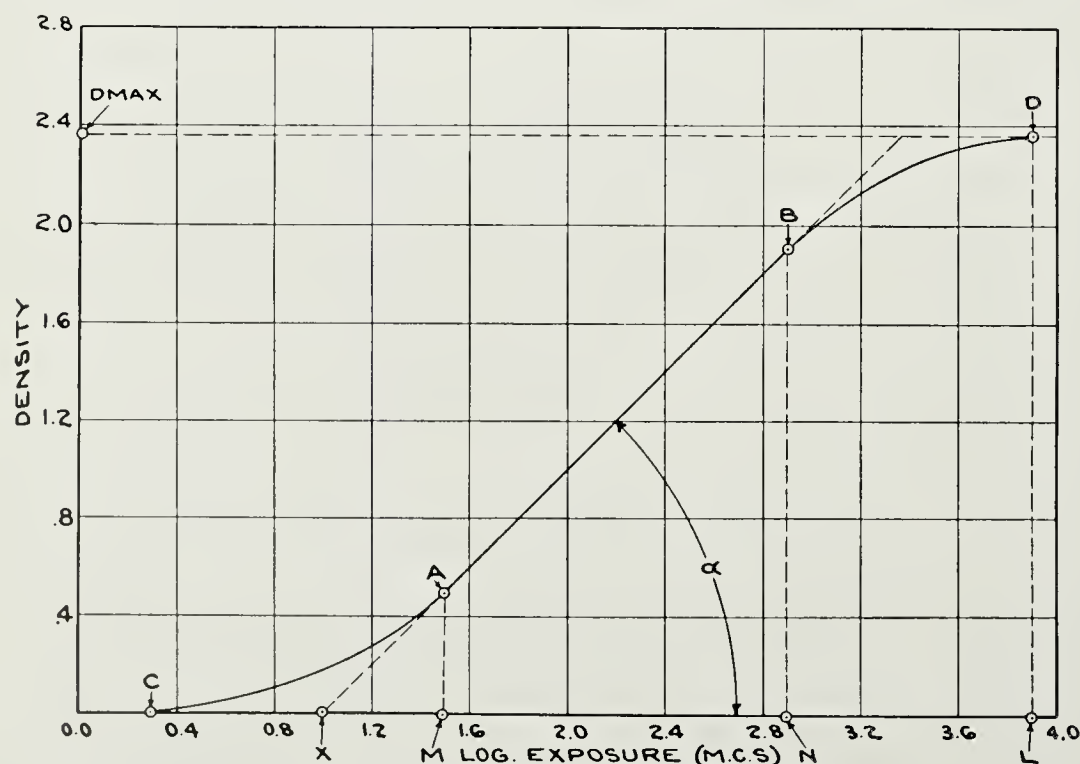


Fig. 8—Typical D-log E or "characteristic" curve, showing the relation between density and log exposure.

however, are unknown. To determine gamma it is not necessary to know the actual angle a at X . However, since the triangle BNX is a right triangle, the tangent of the angle BNX is equal to the altitude, BN , divided by the base XN .

$$\tan a = \frac{a}{b}$$

Now, the altitude expressed in density units is known, and that of the base in log E units is likewise known. In this particular case, the density at B is 1.90 and the density at N is 0.00. The difference is therefore 1.90. This, then, is the numerical length of the altitude. The base extends from log E values of 1.00 at X to 2.90 at N , so the length of the base is 1.90. In this case, therefore,

$$\tan a = \frac{1.90}{1.90} = 1.00.$$

Therefore, the value of gamma for the curve shown in Figure 9 is equal to 1.00.

Had the altitude measured 0.95 and the base 1.90, then

$$\tan a = \frac{0.95}{1.90} = .50.$$

Fortunately, it is not necessary to determine gamma mathematically. There are a number of graphical methods, the best known perhaps being that of Hurter and Driffeld. If, in Figure 9, a line is drawn from N (the log E value of which is 3.0) parallel to the straight-line portion of the curve, AB , the angle at N will be equal to BNX , since the line has been drawn parallel to AB . The tangent of the angle at N is thus equal to gamma, just as is the tangent of BNX . Now, in the right triangle formed by the line from N , the tangent of the angle at N is again equal to the altitude divided by the base. The base, however, is equal to 1, since the difference in log E 3.0 and log E 4.0 is equal to 1. Consequently, if the right-hand side of the chart is marked with a scale corresponding to

the density scale on the left-hand side, the point of intersection of the line from N is equal to gamma.

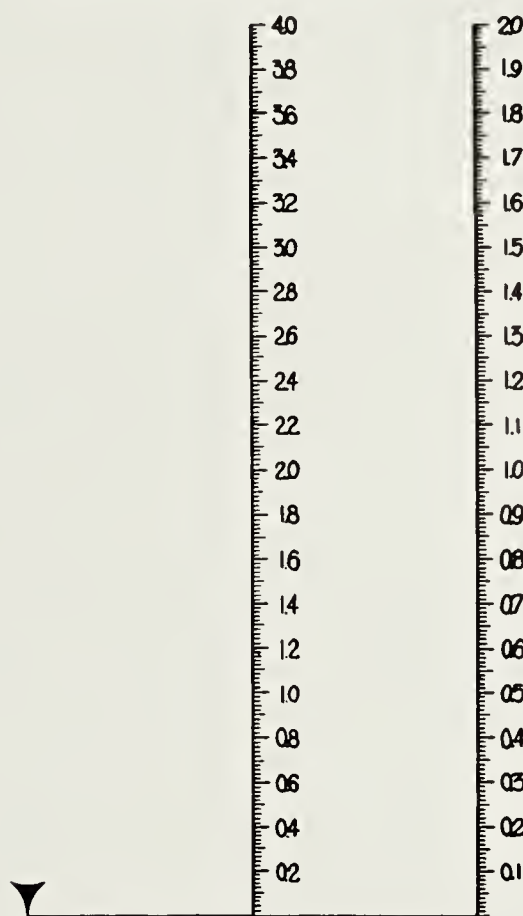


Fig 10—The Gammeter.

Gamma may also be determined in the following manner: Extend the straight-line portion of the curve to intersect with the log E axis (AX in Figure 9). From a point to the right with a log difference of 1, erect a perpendicular to intersect with the straight-line portion of the curve. A line from the point of intersection parallel to the log E axis cuts the density scale on the left-hand side of the chart at the value of gamma.

In the laboratory, gamma is usually determined in an even simpler manner by the use of a transparent scale known as a gammeter (Figure 10). If the arrow on the left of the base line is placed at any point along the lower portion of the straight-line portion of the H and D curve, with the base line of the gammeter parallel to the log exposure axis, the point on the numerical scale at which the straight line crosses gives the numerical value of gamma.

A gammeter may be made by copying Figure 10, using preferably a process film or plate, and making a positive by contact printing on a similar material.

ZERO HOUR AT WAUKEGAN, ILL.

Continued from Page 7

Now it is getting lighter, dawn is almost with us. We turn our flashlight on the camera for a last check up,—here comes the gas squad again—they're lining up for a blast at No. 5—wide open f.2—les see 'bout eight frames might get something on the film — BANG, BANG! CRASH! "Hope they stand still so it won't be so jerky; Lord, but fifteen feet at eight frames seems like an eternity, PULLEEZE DON'T stop yet!" "Ah, we've started, WHERE IS that daylight! Hope they keep fighting!" BOOM—crash! SPUTTER, SIZZZZZZ, PHEWWV! — "L'k out! SCRAM—" — One of those gas shells has hit a window frame and bounded back into our bidst. A scramble of deputies and photogs with the newsreelers bringing up the rear after trying to squeeze out another fifteen foot "shot"! — A breeze follows us, carrying along a cloud of nauseating gas. — One of the boys inhales at the wrong moment, nice deep breath, and almost instantly he is in a state of vomiting that borders on convulsions! We sympathize, with tears in our eyes, tear gas tears! not tears of sympathy and realize we can't help him, — so, off again after the deputies as they rush to blast the west side of plant No. 3. — It's still foggy, we shiver, the tear and nauseating gas hangs heavy all around the plant, and everyone looks as though he had been competing in a week-end onion peeling contest. Several of the cameramen are rather pale and "not feeling so well"

at the moment. — "Wonder what the strikers feel like?" —

It's getting lighter now. "Let's rush 'em boys," comes from one of the deputies. — A door is smashed away, but there is a barricade of steel cabinets and whatnot blockading the entrance! — BANG, BANG! A few more final blasts into the second floor windows! — "Up the fire escape, men!" — Guns in hand, up they go! and cameras in hand, up go the cameramen right on their heels! — Another door to smash down—"Hey, you! "Anyone in here, come out and surrender before we blast you out!" No reply. Deputies and cameramen advance. More "Surrender" orders—more silence!—"Careful, boys, maybe it's a trap, 'n you, damn cameramen, get thu 'ell out our way" — But the Sit-Downers have all escaped via a spiral sliding fire escape, and the victory is just a bit "empty"—and our "story" is also rather one-sided.

We wait for more light to get our "wreckage and aftermath" shots. Then back to the hotel, away from the gas laden atmosphere. We check up on the cameramen, we've been lucky, again! None of us has stopped any "confetti," and aside from bloodshot eyes and a few weak stomachs, all is well. We pack and ship our negative, wire the "office," a shower to refresh ourselves, ham and eggs, —seventy-five cents worth—and then back to the scene of the battle (which, of course, was nothing like the one at Flint, or at Taylorville, or Pittsburgh or Akron) just to be present in case something REALLY exciting should happen!

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ROBERT TAVERNIER

C. GANZER

TECHNICALLY SPEAKING

Continued from Page 6

Thus, a plane flying at 12,000 feet above the ground (not sea level) and equipped with a mapping camera with a lens of twelve inch focus, will make a negative in which each inch will include 1,000 feet on the ground.

So, if someday you are asked to state at what scale a certain shot will be on the negative you need only measure the distance to the principal object in feet and divide this by the focus of the lens. This is a handy thing for the still men. Do any such ever read this column?

So now I shall say, once more, adios!

VI'S KRAX

Floyd Traynham, Jr., will make a first class Newsreel as he has won his varsity letter in fencing at Illinois. He should be able to step around as fast as his famous Dad at Universal Newsreel.

Milt Mumblow, who was the advance newsreel arrangements man for Landon's campaign, is now photographing for the Oklahoma City Times. I'm surprised they didn't send him away up to Maine or Vermont.

The pictures for the front cover of this magazine are pouring in like molasses in January.

Had a Sit-down Strike last month, that's why there was no Vi's Krax, see you next month, Happy Easter to you all.

Say

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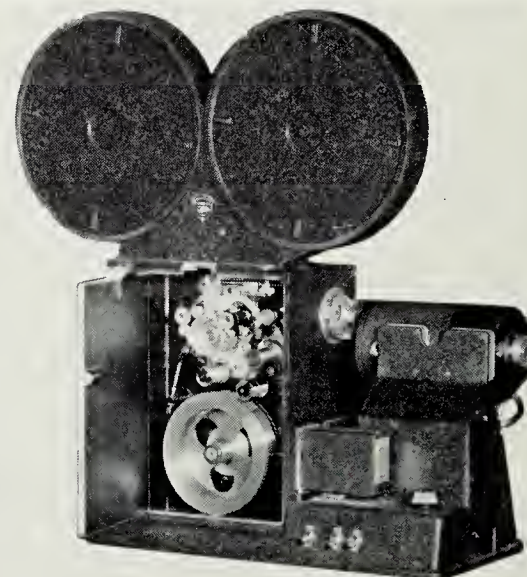
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Cinemabiography

ROBERT TAVERNIER was born in West Flanders, Belgium, in the year 1904. Spent four years in (German occupied) Flanders during the World War from 1914 to 1918. Left Belgium for the United States in 1919 and arrived in Chicago in August of the same year. From 1919 to 1923 studied art at the Commercial Art School, and Art Institute of Chicago. Worked as a commercial artist and spent his evenings going to school studying English.

In 1923 he started to work at The Brinner Film Service art department, making animated drawings and general art work. In 1926 he had his first experience with a camera shooting titles and animation. In 1927 started working on Industrial Pictures, some of the most recent include, a Coal Mining Film, Transportation Film for American Airlines, also a three reel color film for the State of Missouri and a Laboratory Subject for Electrical Research Products, Inc. Tavernier has an interest in the Mutual Film Laboratory and his pet hobby is his machine shop where he spends many happy hours building useful items for the camera, printing machines, etc.



Robert Tavernier

THE ELEMENTS OF TELEVISION

Continued from Page 11

If, however, heat is applied in a space in which no air exists, in other words in a vacuum, a much different condition takes place. There are few atoms in the area outside the metal and the electrons can consequently make longer journeys. This is illustrated in Figure 28 which illustrates the emission of electrons from the filament of a radio tube in a vacuum and their attraction to a positively charged plate.

The rate of speed at which these trips are made is at least 600 miles per second, and in some cases reaches as high as 160,000 miles per second, almost the speed of light. Some scientists have stated that the electron cannot maintain its independent existence unless it travels at a speed of at least 100,000 miles per second, since it is nothing more or less than a disembodied portion of electricity. The speed of their travel will depend upon the substance from which they are dislodged and the strength of the attracting force.

The force exerted by a stream of electrons emanated from certain substances such as radium is sufficient to pierce a sheet of steel one foot thick if the strength of the attracting force is sufficiently strong. An ordinary sheaf of them liberated from an ordinary tungsten filament under the influence of heat, and properly directed, will pierce through a sheet of glass.

Here, verily, in the atom and the electron, lies a force of such magnitude as to stagger the imagination.

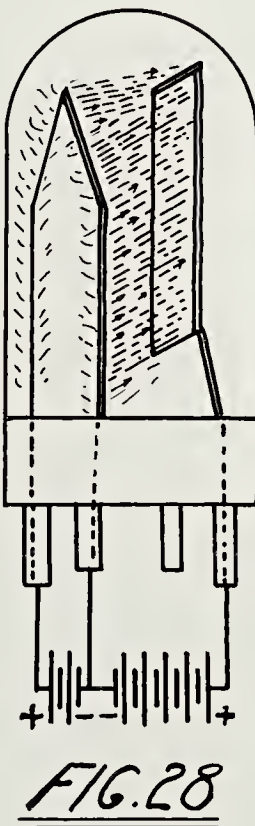


FIG. 28

CINEMA DIGEST Classified Advertising

Rates 50 cents per line—minimum charge one dollar per insertion. For Sale—For Rent—Wanted—For Exchange—Etc.

FOR SALE—Contax Enlarger. Brand new, all equipped, \$45.00. Apply local 666.

FOR SALE—Genuine Edison Portable storage batteries for camera drive, etc., real value. Apply Local 666.

FOR SALE—12 volt motor for B & H camera, with Edison battery. Apply Box 20, Cinema Digest.

FOR SALE—Camera motors, Pola screen holders, any make camera. Apply "Doc" Gantz, Local 666.

FOR SALE—Bell & Howell field type tripod. bargain. Apply Local 666.

FOR SALE—Ampro 16 m. m. (sound-on-disc) projector complete with turntable and amplifier; excellent condition; like new; best cash offer. Local 666, Box 12A.

FOR SALE—Best cash offer takes one or all of five Capitol continuous 16 mm. projectors excellent condition. Box 304, Cinema Digest.

FOR SALE—Completely equipped wooden-case professional model Debie—4 extra magazines—automatic fade—4 lenses—tripod, \$250.00. Apply Local 666.

FOR SALE—Two Devry 35 M/M Projectors, Models E and EU; A-1 condition; very reasonable. Apply Cinema Digest.



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Here's a buy! Brand new Leica Model G, speeds from one second to 1/1000th, chrome finish, with 50 mm. Summar F:2 lens, Eveready case. Regularly lists at \$264.90; Bass price...\$184.50

Used Contax Model I, speeds from 1/2 second to 1/1000th, fitted with 50 mm. Sonnar F:1.5 lens and Eveready carrying case. A \$299.00 value at.....\$189.00

Welti Minicam... a superb instrument fitted with 50 mm. Schneider Xenon F:2 lens, Compur shutter to 1/500th of a second. A splendid value at... \$62.50

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SPRING FEVER—Fred Wagner

MAY, 1937

Vol. 3

No. 5

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CINEMA DIGEST

CHICAGO, ILLINOIS

WILLIAM H. STRAFFORD.....Editor
 BERTEL J. KLEERUP.....Associate Editor
 HARRY BIRCH.....Advertising Manager
 Associate Writers—Members of Local 666

Published by



Local 666—I. A. T. S. E.

INTERNATIONAL PHOTOGRAPHERS

OF THE

MOTION PICTURE INDUSTRY

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Chicago, Illinois

Telephones Webster 7440-41

The twenty-two states comprising the jurisdiction of Local No. 666, viz: North Dakota, South Dakota, Minnesota, Wisconsin, Nebraska, Iowa, Illinois, Michigan, Ohio, Indiana, Kansas, Missouri, Kentucky, Oklahoma, Arkansas, Tennessee, Alabama, Mississippi, Louisiana, Texas, Georgia and Florida.

Subscription Rates—U. S. and Canada, \$2.00 per year, 25c per copy.



Four International Unions comprising the I. A. T. S. E., United Brotherhood of Carpenters, International Brotherhood of Electrical Workers, The International Brotherhood of Teamsters and Chauffeurs and The American Federation of Musicians met for their Annual Conference on the basic studio pact on April 4th and 5th in the office of Pat Casey, representative of the major motion picture producing companies. The meeting was not drawn out and ended with the I. A. T. S. E. and other national Unions receiving a 10% wage increase with the exception of the musicians, who did not seek an increase.

The International Brotherhood of Painters was offered recognition by the producers on recommendation of the labor group under the same conditions as they enjoyed prior to their withdrawal from the basic studio agreement in 1932. The painters rejected the proposal because their jurisdiction over Art Directors, Hair Dressers and "Make-up" men was not recognized.

Edmund Reek, for many years editor of Movietonews, has been promoted to the post of General Manager. Jack Haney, former Assignment Editor, now becomes News Editor.

Allyn Butterfield has been made Editor of Pathe News, replacing Harold Wondsell, resigned. Bert Halish becomes Assistant Editor.

Ray-Bell Films has received an R. C. A. sound recording license for five years.

International Photographers Local 644 have moved into new headquarters at Rockefeller Plaza, Radio City, New York.

Norman Alley has been named head of Universal Newsreel's Los Angeles office in place of Merwyn Freeman, resigned.

Loren Tutell, Local 666, leaves April 28th, from San Francisco, California, on the S. S. Mariposa as cameraman of an expedition en route to Honolulu in search of new specimens of marine life for the John D. Shedd Aquarium, Chicago's beautiful memorial to a great Chicagoan. He will be away for about two months, during which time he will record in color photography the collecting of rare fish of that locality.

THE DICTIONARY

By J. ROY HESS

Whenever need compels a look
 Into a dictionary book,
 I marvel at the time, and pains,
 And what a lot of thought, and brains,
 Where used to build its knowledge vast,
 With every word defined and classed.

Now, there's a word called BROTHERHOOD,
 Right now 'twould help, if understood,
 And there's such words as DO, and DARE,
 And FAITH, and HONOR, LOVE, and CARE,
 An outline of the term called DUTY,
 Description of such words as BEAUTY.

There's PLEASANT, BRIGHTNESS, also
 WORTH,
 WORK, and HOPE, and JOY and BIRTH
 GIVING, STRIVING, SEEING, LIGHT,
 PATIENCE, SWEETNESS, CHEER and
 RIGHT.

Look these up, and also SMILE,
 Linked with LIFE, they're quite worth while.

SUPREME COURT UPHOLDS WAGNER LABOR RELATIONS ACT

Provisions of Wagner Labor Act

Provisions of the Wagner labor relations act upon which the Supreme court handed down two opinions provides that:

"Employees shall have the right to self-organization, to form, join, or assist labor organizations, to bargain collectively through representatives of their own choosing and to engage in concerted activity, for the purpose of collective bargaining for others, mutual aid, or protection."

The act declares it to be unfair labor practice for an employer:

1. "To interfere with, restrain, or coerce employees in the exercise of the rights guaranteed" in the declaration of policy.

2. "To dominate or interfere with the formation or administration of any labor organization or contribute financial or other support to it."

3. "By discrimination in regard to hire or tenure of employment of any term or condition of employment to encourage or discourage membership in any labor organization."

4. "To discharge or otherwise discriminate against an employee because he has filed charges or given testimony under this act."

5. "To refuse to bargain collectively with the representative of his employees."

The act sets up a board of three members to enforce provisions of the act. The board is authorized to conduct elections among employees to determine which labor organization shall represent employees for collective bargaining. The act provides that the majority unit shall speak for all employees in bargaining.

UNCLE SAM TO CENSOR ALL MOVIES OF NAVY AND ITS ACTIVITIES

THE United States Government has drafted a new set of regulations governing the photographing of the Navy and its activities. Certain violations of the regulations published may render the violators liable to prosecution under the espionage act.

The following is the text of the new provisions:

Motion Pictures, Commercial

(a) The Chief of Naval Operations may authorize naval cooperation with commercial motion picture producers in recognition of the value to both the public at large and the Naval Service in the production of accurate portrayals of naval life. The cooperation between the motion picture producers and the Navy will involve, on the part of the motion picture producer, agreement in writing to adhere to the restrictions imposed by this order and, on the part of the Navy, assistance to the motion picture producers in the technical supervision of the taking of the picture to prevent the inclusion of matter not desired to be made public.

(b) Photoplays.

(1) The Chief of Naval Operations may, at his discretion, authorize naval cooperation for the production of photoplays, the scenarios of which have been submitted and approved.

(2) The Naval authority designated to cooperate with the producing company will provide for Naval supervision in the interest of security of all footage taken within Naval jurisdiction, and where practicable, for prompt local provisional censorship of such footage as may be considered by the supervisor to contain information of a confidential nature. The local provisional censorship is for the purpose of quickly bringing to the attention of both the producing company and the Navy Department film which is questionable and is not for the purpose of questioning script or dialogue. One print of all the questioned footage for the given production will be forwarded as confidential matter by the Naval authority concerned to the Chief of Naval Operations. The producing company will be informed when the questioned film is forwarded to the Chief of Naval Operations.

(3) All photoplays produced with naval cooperation will be submitted by the Producing Company to the Navy Motion Picture Board of Review, Navy Department, Washington, D. C., for final review and censorship prior to release.

(4) Whenever a photoplay is produced with naval cooperation, the Navy Department reserves the right to acquire without cost two positive prints of every such photoplay, and to use them in any manner it may see fit, excepting that these prints will not be used commercially nor will they be exhibited at shore stations until out of their pre-release status.

(c) Newsreels.

Newsreels of Naval subjects for which naval cooperation is granted will be accorded naval supervision in accordance with paragraph 4g of this order. Newsreels of this category will be forwarded by the producing company for final censorship to the Commandant, Third Naval District, New York, prior to release.

(d) In view of the strict control exercised over motion pictures taken in naval jurisdiction, in order to meet the legitimate requirements of motion picture producers for



BASS IS *Candid Camera* HEADQUARTERS

Here, at the Camera Crossroads of the World, you may inspect every type of standard candid camera known at rock bottom prices. Leica, Contax, Welti, Super Baldina, Robot, Argus and all other cameras which lay claim to quality. You can save time and money by dropping into Bass.

Here's a buy! Brand new Leica Model G, speeds from one second to 1/1000th, chrome finish, with 50 mm. Summar F:2 lens, Eveready case. Regularly lists at \$264.90; Bass price...\$159.50

Used Contax Model I, speeds from 1/2 second to 1/1000th, fitted with 50 mm. Sonnar F:1.5 lens and Eveready carrying case. A \$299.00 value at\$185.00

Welti Minicam . . . a superb instrument fitted with 50 mm. Schneider Xenon F:2 lens, Compur shutter to 1/500th of a second. A splendid value at...\$62.50

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Bass

CAMERA CO.

179 W. Madison Street
Chicago, Ill.

scenes of a spectacular nature, motion picture photographs of fleet in simple maneuvers, aircraft in flight, distant views of ships firing, interior views of living quarters and similar scenes which do not disclose information of a confidential nature may be permitted subject to final censorship.

(e) When the Navy Department Board of Review or the Commandant, Third Naval District, censors and condemns any footage, the producing company will promptly submit all prints, "lavenders," and negatives of that footage to the censoring authority, together with a signed statement that all prints, "lavenders," or negatives of any nature made from the disapproved footage have been surrendered to naval authority.

(f) Civilian (motion picture) photographers shall be informed that the retention of negatives or prints or the publishing of photographs in violation of their agreements or failure to deliver negatives or prints to proper naval authority upon demand may render them liable to prosecution under the Espionage Act.

(g) In order to protect the interests of both the commercial photographer and the Navy, whenever a commercial photographer ("Still" or "Motion Picture") is authorized to take pictures of a naval subject an Officer or other qualified expert will be detailed to act in an advisory capacity to the photographer in order to prevent the disclosure of objects which the Navy does not wish to be photographed. Experience has shown that a majority of the pictures requiring censorship could have been released for publication were it not for inadvertent disclosure of confidential matter in the background. Attention is invited to paragraph 1. (b), (3) of this order.

KODACHROME and PRINTS

By GLENN DORSEY

SHOOTING Kodachrome for perfect results is quite a bit different from the old Black and White, as many good cinematographers have found out to their sorrow. In Black and White, all colors are changed to various shades of gray. Subjects to be emphasized are highlighted in light and shadow, unimportant parts of the composition are blended into the sidelines or background. Everything must be visualized by the man behind the camera in its position in the relative monotone gray scale.

In color, however, all the old values of the game are changed. First, the latitude of the film is less. The man who guesses at his exposures for Kodachrome is going to be sadly out of luck. One stop overexposure gives a thin, washed print, without detail or color. One stop under exposure changes all colors and shades to that if a duplicate with the printing light boosted up to give a normal print is made, the shades are changed, although the densities are correct. The straight portion of the H & D curves of the dye-images used in Kodachrome is very short, necessitating a very correct exposure to give correct color values.

Actually, those colors and shades only are closely duplicated which are exposed in the center of the H & D curves. This condition exists in the Kodachrome original as well as in the Kodachrome duplicate, as anyone can readily ascertain by comparing a frame of the Kodachrome original with the actual scene which was photographed. This changing of shades and color values is considerably emphasized when duplicate Kodachrome prints are made.

Second: Exteriors should always be made under noon-day sunlight. Shadowed exposures under trees and etc., should be avoided or boosted with reflected sunlight. The foremost reason for these precautions is that skylight has a different color balance than direct sunlight. There is approximately 3 times as much blue light in proportion to the other colors in skylight than in sunlight. This statement can be checked by anyone in a few minutes using a set of Tri-color filters and an electric photometer or exposure meter. This accounts for the chalky white or blue appearance of flesh tones when photographed on Kodachrome in shadowed locations. Gold tinted reflectors can

correct this if properly balanced with neutral or silvered reflectors.

Third: Avoid shooting Kodachrome in the early morning or late afternoon. Take any given scene, shoot it once in the early morning, at noon, and in the late afternoon, on the same roll of film. When it comes back from the nearest Kodachrome lab note the different color balance in the three takes. The morning take will have a blue cast. The noonday take will appear natural, while the late afternoon shot will be tinged with red. This changing of color balance is so gradual that we fail to notice it. Anyone will appreciate this who has worn a pair of colored sun glasses, as after wearing them a few minutes the eyes adjust themselves and everything appears natural again. However, Kodachrome does not see things as our eyes think they should be seen, but as they are compared to the average normal conditions. The blue morning light comes from water vapor suspended in the atmosphere which reflects the blue end of the spectrum. The red cast of the late afternoon sunlight comes from dust and smoke particles sent up by human habitation.

Fourth: When shooting interiors, either with Kodachrome "A" or regular Kodachrome with balancing filter, flat light as much as possible. The faults of 90% of Kodachrome interiors is that the background is not lighted as strong as the foreground. Also faces are usually over-lighted, giving them a pasty, chalk white appearance. The cure for this is to keep the foreground lights as far behind the camera as possible, and to have sufficient lights trained on the background alone to bring up its illumination equal to that of the foreground. Remember, one of the most important tenets of color photography—"It is impossible to light a color subject too flat." Let the color give the subject its form and depth. Modeling in color is carried out by the subject itself as most surfaces reflect various shades of color from different angles.

Fifth: To get the best results, use only fresh Kodachrome. Keep it away from heat, and when travelling try to store it in a refrigerator, particularly after exposure. Send your Kodachrome to the nearest Kodachrome lab immediately after exposure by the fastest means available. The green sensitive emulsion, the magenta printer, is subject to fading, and when this takes place even to a very slight degree the developed film has a more or less pink or red cast which can be corrected to some extent by proper duplicating—but try to avoid it if possible.



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THE ELEMENTS OF TELEVISION

By C. P. MEEK, I. A. 666

Editor's Note: The articles on Television, by C. P. Meek, have now reached a point where the principles underlying television "cameras" are being discussed. The theories of their uses should be interesting to motion picture cameramen and all such are urged to become familiar with them.

Section XXIII—The Old and New Conceptions of Electricity Compared.

In the old days electricity was regarded as a fluid flowing like water from a point of high pressure to one of low. The body at *high* pressure was regarded as "positive" and that at *low* pressure was called "negative." The current was supposed to flow from the positive to the negative terminal through the external circuit.

The new view, as has been shown, is that electricity is a rapid movement of electrons, moving from atom to atom in the conductor or wherever the current may be. This is not a stream as might be indicated by a flow of water. The actual occurrence is more on the order of a set of bowling pins each of which is stood on its end and closely adjacent to its neighbor, the whole group being in a long row. A slight push on the first pin will cause the second one to receive a blow which will knock it over. In its fall it will strike the third one, and the impact will be passed on from pin to pin until the whole group has been toppled over. And so it is in the electronic theory of electricity. An electron is released from an atom; it passes on to an adjacent atom which in turn passes on one of its units to the next atom, and so on throughout the entire circuit. This movement occurs at the enormous speed at which electrons travel, and is in consequence, practically instantaneous.

There is a definite contradiction in the two views discussed above, in that the first supposes a flow from a positive to a negative terminal through the load, while the second indicates a movement in the opposite direction.

All substances are made up of atoms. Now the electrons are *negative* particles (proof of which will be shown soon) and must, therefore, be that portion of the atom which is *negative*. If electricity is a movement of electrons from one atom to another, the negative portion must be *leaving* the atom, and what is left must therefore be *positive*. This being so, a positively charged body must be one which has lost some of its parts. Conversely, the negatively charged body must be one having more than its normal supply.

The movement is from the atom having the excess, namely, the negative, to the atom having the insufficient quantity, or the positive, and the old theory, therefore, appears to be in error since it indicates the opposite.

The terms "negative" and "positive" in electrical usage have existed since the early days of the science, and have been accepted by technicians according to the old theory. When electricity was first applied to furnish illumination and power for motors and other devices, it was thought that the flow was from that terminal of the generating device known as "positive" to that marked "negative." It was thought that the excess fluid poured out of one terminal, went through the external circuit, and returned to the other so that a balance was restored. The reasoning in the paragraphs above would indicate that this is untrue.

However, note that there is no reason why the term "negative" could not be used for the body having the excess and "positive" for the one having the deficiency. The terms are quite arbitrary; but since a change to bring

the present-day theory into popular acceptance might cause some confusion, the terms are left to apply in their original sense.

Long ago, before electrons were heard of, it was known that if two sheets of metal, one of zinc and the other of copper, were put together, some type of reaction would occur, and a small amount of electricity would be produced. What actually happened was that the zinc, being a metal the atoms of which seem particularly desirous of disposing of some of their electrons, gave up some of these to a neighboring atom of the copper, and their passage from one substance to the other formed a flow of electrons, or of "electricity." When the two metals were immersed in a blue vitriol solution and externally connected with a wire, the current became stronger. There was actually a brisker flow of electrons because the atoms of zinc which were removed from the parent substance by the chemical left their detachable electrons behind them and the zinc had, in consequence, these additional outlying electrons to pass on to the copper. These reasons for the flow of electricity between the two metals and in the outside circuit were determined after the scientists had learned much about electrons.

Section XXIV—The Proof of the Negative Nature of the Electron.

When experiments were first made on the action of electrons the old "fluid" idea was applied to the elements within the vacuum tube and to the astonishment of the scientists, failed to work at times.

Efforts to move these minute particles from a heated body toward a metallic plate which was negatively charged were unavailing. The reason was searched for, and someone finally conceived the idea of reversing the wires at the terminals of the battery which furnished the potential for the anode. The electrons immediately left the heated filament and travelled over to the plate. The fundamental laws of the old theory were looked into for the cause of all this, and finally one which fitted the case was discovered. The rule is that *oppositely charged bodies attract each other, and similarly charged bodies repel*.

Therefore, if the metal plate was charged positively, that is, had the positive terminal of the battery fastened to it, and under these conditions attracted the electrons, these latter must be charged in a manner opposite to this, or *negatively*. Since the electron is considered as a particle of electricity, it is hardly proper to say that it is negatively *charged*, but here again the older theory of electricity persists. Still sticking to the old ideas it would be more proper to say that the electron is a particle of negative electricity.

Section XXV—The Influence of Magnets on the Electronic Stream.

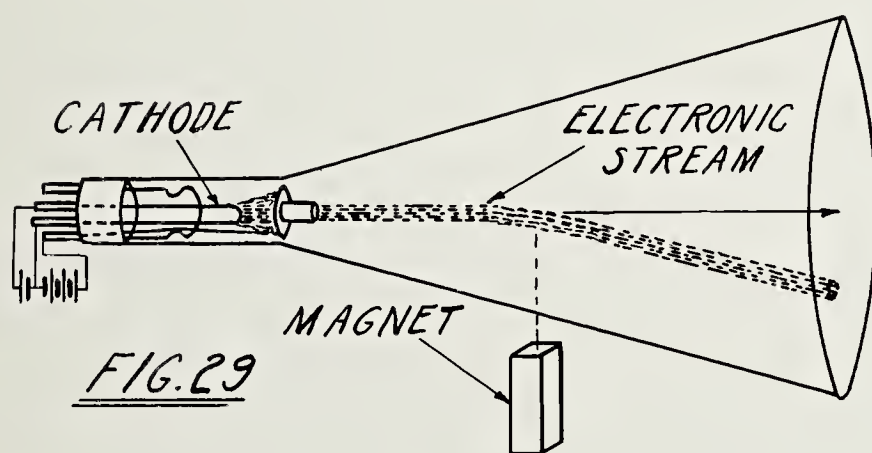
The experiments discussed above satisfied the scientists that they had found a means of attracting and repelling the electron. If they wanted a supply of them they could heat a filament in a vacuum and apply a positive charge to a plate to attract it. If they wished to eliminate a beam of them, they could do so by introducing a negatively

charged element in the vicinity of the stream.

All this was very interesting, so they went further. If the electron obeyed so many laws of electrical theory, perhaps it could be connected to some of those of the theory of magnetism. So these were put to the question, and it was discovered that if a magnet was placed in the vicinity of a body emitting electrons, they would be attracted toward one of its poles and rejected by the other. The normal tendency was for the beam to travel in a straight line as indicated by the arrow in Figure 29. However, if a magnet was placed near a stream of them which had been drawn forward by a positively charged plate, it could be bent toward or from the magnet as shown. The amount of push or pull was dependent on the strength of the magnet, its distance from the beam, and the speed at which the stream was travelling.

How did they know that the stream was moved? By observing the glow which occurred when it struck the material of a fluorescent screen which was placed on the inside of the end of the tube.

Under ordinary working conditions this appeared as a stationary shining spot, but under the influence of the magnet it could be moved at will to any place on the screen. But this is getting ahead of the subject.



Section XXVI—The Electronic Stream Receives a Name.

Earlier, it was stated that when the wire was heated in a vacuum (see Figure 28,) electrons of the atoms on the surface of the wire would fly off into the surrounding medium (or lack of it). They did not go far, but they did go farther than they did in open air. It was also explained that under the influence of an external or internal force, the atoms were continually bouncing about, striking each other in their struggle to readjust themselves.

The same applies to the individual electrons which are a part of these atoms. The first ones to leave the surface of the wire do not get far, and the succeeding electrons bump into them and are interfered with in their efforts to go farther. If a layer of them is established near to the surface of the metal, the same old rule that *like particles repel, and unlike particles attract* again applies. Each electron, being negative in nature, repels its neighbors, and in the free-for-all which follows, each menaces others until none of them travel any great distance. Moreover, their speed is not great, since there is no force to attract them.

But if a positively charged metal plate is placed within the tube, the first electrons released are attracted toward it. Others follow, and finally all of them head in the one general direction like a spraylike stream. The greater the charge on this plate the faster they will go, and the more concentrated will be the stream since the repulsion of

electron by electron will be somewhat over-influenced. If the positive plate is connected through a battery to the heated wire as shown in Figure 28, all the electrons attracted to the plate will find their way back to the heated filament, and an electric current will be established. This is the basis of the radio tube. Electrons are just traveling around and around in a circle. Of course, many other functions are being performed during this trip, but this circuit is fundamental to all vacuum tubes of which the electronic stream forms a part.

In the early days, scientists gave a name to that portion of the circuit which was within the vacuum tube. They called it a "cathode ray," due to the fact that there seemed to be a stream or ray of some kind originating at the cathode, or heated unit, and passing on to the other positively charged element (the anode).

All vacuum tubes which use the electronic stream are fundamentally "cathode ray tubes," but the term as used technically does not apply to those which are used for radio or amplification purposes. These are very well distinguished by their present names. Generally speaking, the accepted meaning of the words, "cathode ray tube," indicates a tube in which electrons are generated, not to form an electrical current as in the radio tube, but for the purpose of using the stream of electrons to draw visual figures on fluorescent viewing screens so that various electrical phenomena such as wave shapes etc., may be observed and studied. In a cathode ray tube the stream is attracted toward a positively charged plate, but does not stop at this point as it does in radio tube circuits. The stream is forced on past or through an aperture in the plate to exert its influence on the fluorescent screen which is located some distance away and is isolated from the other elements of the tube.

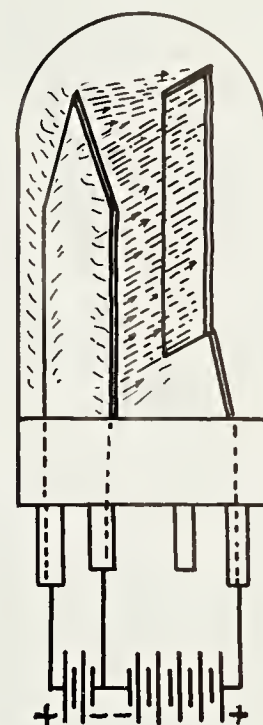


FIG. 28

SAY

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Sound Camera men already familiar with the DeVry Sound Recording Camera will prick up their ears, when they read of the advanced features recently incorporated in a camera, which had already proved its worth without the new features.

In its present form it should prove a boon to newsreel men, who want to be able to get the sound with the picture—or separately as they prefer.

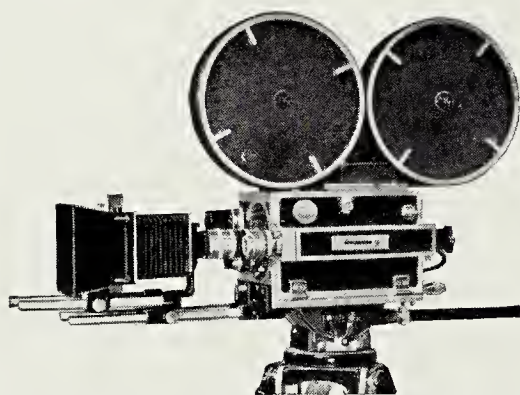
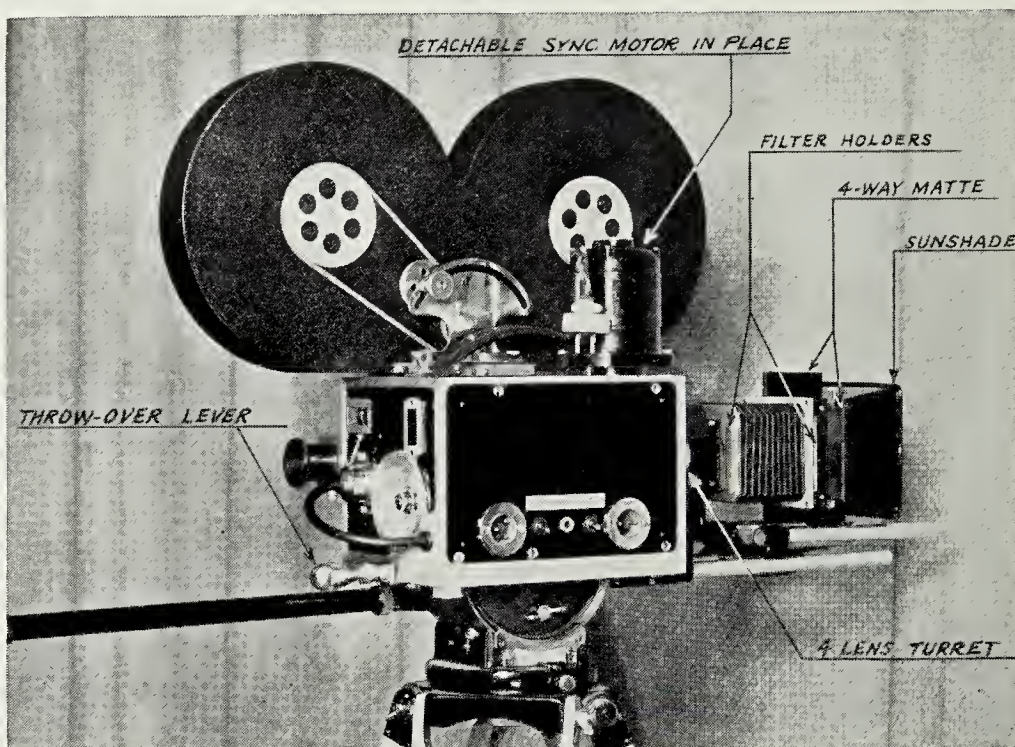
Reference to the diagrammatic photo above will make the added features clear at a glance. Prominent on top of the camera is the extra feature—the external A.C. synchronous motor for interlocking camera and projector electrically, for scoring or re-recording.

The arrows show also the new filter holders and sunshade and matte box, detachable from camera (extra); the new camera throwover lever for greater ease in shifting camera for composing and focusing. Other new features of the camera include a more rigid base casting, 4 lens turret instead of 3—with an improved turret mount.

The micrometer parallax adjustment has been made more sensitive—and the roller film channel has been made smoother for double recording.

The Noiseless Recording Feature adds greatly to the value of the camera. This means that the lamp does not record when no signal is coming through, thus covering up film surface noise, exciter lamp hum, etc., by presenting a black track to the optical system.

In the recording amplifier, 7 tubes now do the work of 10, using latest type octal base tubes, some of which can be interchanged with metal tubes. There is a 3-position mixer with input channels for two dynamic microphones, a phonograph, and a crystal microphone. Through a special impedance matching pre-amplifier, one



Front view from operating side gives clearer view of 4 lens turret and focusing microscope finder.

of the input channels can take the output of a projector and provide a full scoring and recording set-up, with full control over each channel.

Mixing is done electronically within dual tubes.

Tone Compensator

can be used for cutting off or attenuating frequencies below 100 cycles when recording speech. Connected only in the microphone channels, it relieves the boominess caused by excessive bass in voice recording. At maximum attenuation, the loss at 100 cycles is from 15 to 20 D. B., and 50 and 60 cycles are below audibility.

The push-pull output eliminates even harmonics, and provides over 200% more power than required by the recording lamp, thus doing away with amplifier distortion on signal peaks.

The flat frequency response is within plus or minus 2 D. B. from 30 to over 12,000 cycles.

Here is an up-to-the minute instrument equipped to meet modern studio requirements, and yet portable enough and flexible enough to make an ideal unit for location and newsreel work.

CHICAGO, April 9. The mid-west section of the Society of Motion Picture Engineers held their regular monthly meeting in the studios of Filmack Trailer Company last Thursday, the 8th.

More than 75 members attended, establishing a new record of attendance. Irving Mack, chief of Filmack, personally conducted the group through the studio, explaining the various steps in the production of the animated trailers the company features.

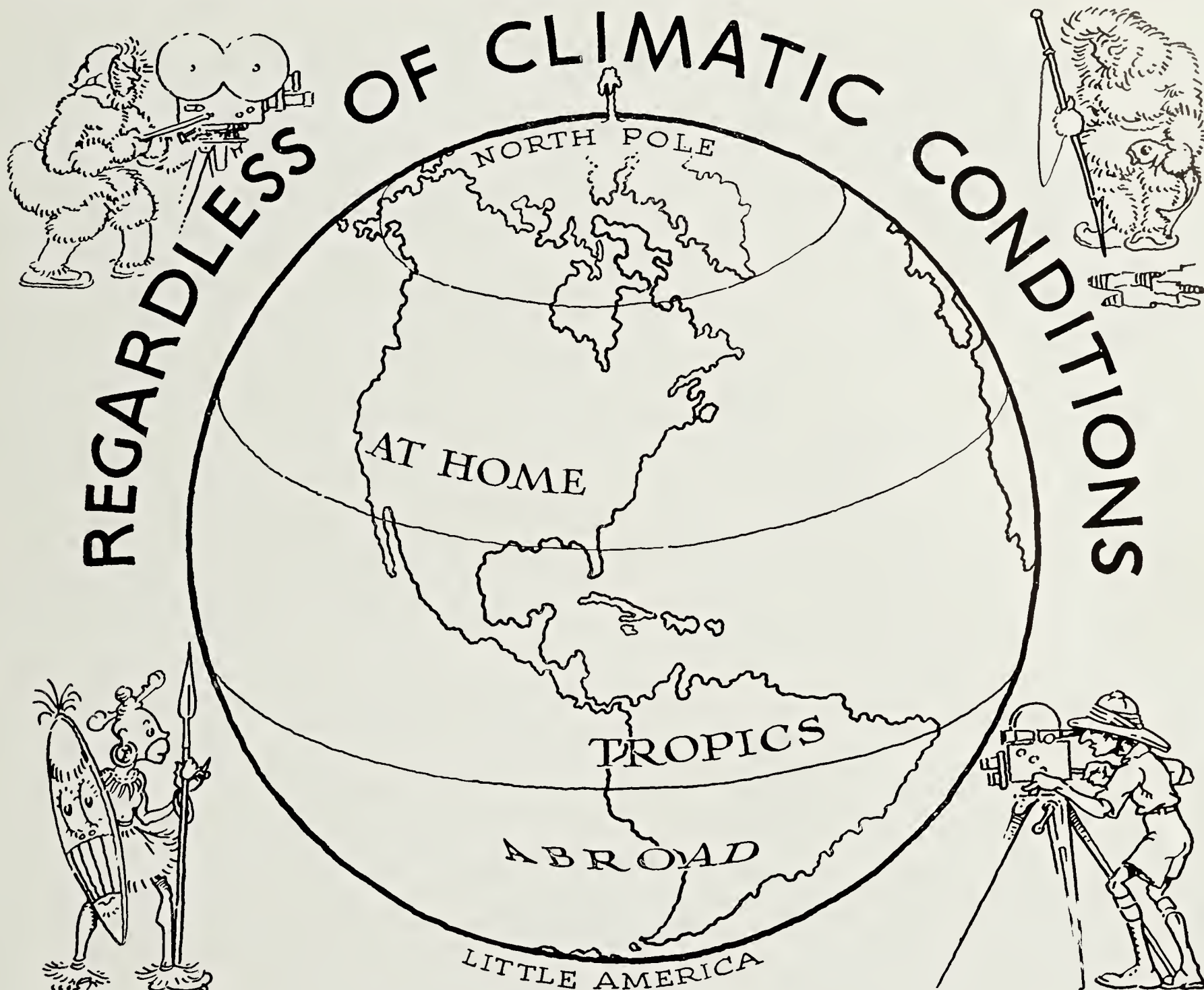
The entire production and technical staff was present and the members of the Society got a complete eyeful of the smooth-running production machine that Mr. Mack has developed.

Carrington H. Stone is chairman of the local section. R. Fawn Mitchell is past chairman, and Stanley A. Lukes is secretary-treasurer. Managers are: Oscar B. Depue and Bruno E. Stechbart.

The 1937 Convention of the Society will be held in Hollywood, California, May 24th to 28th.

KEEPING abreast with constant improvements in the motion picture industry, Ray-Bell Films, Inc., of St. Paul, the oldest industrial motion picture producers in the middlewest, has just completed negotiations with the RCA Manufacturing Company for complete new sound equipment. The new RCA recording equipment is of the latest Studio Model Ultra-Violet, High Fidelity Recording Channel and will be installed immediately in Ray-Bell Films St. Paul Studio. This type of recorder is identical with those now in use at RKO, 20th Century-Fox, Columbia, Warner Bros., and Disney Studios in Hollywood. Installation will be directed by RCA engineers who have promised to have the new equipment in operation by April 15th.

"By introducing Ultra-Violet, RCA has advanced the art of high fidelity recording far ahead of any other type of recording known. Our new RCA unit will be the second in the middlewest," Herbert Oslund, Chief Sound Engineer of Ray-Bell Films, said.



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TECHNICALLY SPEAKING

"DOC" GANTZ—Local 666

HO-HUM-M-M! Spring is here! Gosh, what I could do to that guy Strafford for making me write anything on a swell day like this! Oh well, here goes nothin'.

With the coming of balmy days and breezes, there is sure to be quite a bit of dust flying about. One of the best ways to keep dust out of equipment is to carry a small, flat camel's hair brush, about an inch wide. With this you can dust out the inside of a camera or recorder in jig time, and you'll be surprised at the speed and ease of the trick. Toolmakers have used a brush this way for many years.

One of the prominent commercial studios in Detroit has a scheme in use in their loading room which is well worth being used everywhere film is loaded. They have rigged up a small hand type of vacuum cleaner with a rubber suction hose, and before film is ever loaded into a magazine the snout of the hose is run pretty thoroughly around inside the magazine. It saves time, and insures freedom from emulsion dust. Of course, there is no reason why the camera cannot be taken into the loading room and subjected to this treatment once in a while.

It is a common saying that the film business is founded on adhesive tape. It is surprising the variety of uses which are found for this material around cameras and picture equipment. If you ever get tired of saving the tape off of film cans, and long for a neater type of tape, why not use the tape that the Eastman company supplies in nice big rolls? It sticks like a burr and is far neater and easier to handle than the strips of tape from film cans.

Cameramen are notorious gadgeteers. They're always to be found doping out something or other. For the benefit of the more ardent dopesters, I might suggest that there are two very excellent sources of stock gears, ball bearings, and the many other items of the like which enter into much film equipment. The Chicago Gear Works and the Boston Gear Works, both in Chicago, carry a complete line of stock gears. From their catalogs it is possible to work out almost any gearing problem at a much lower cost than if the gears are ordered made by a machine shop.

I'm starting off bright and early tomorrow (April 20) for Memphis, Tenn., with a new 16 mm. camera for C. H. Poland, which I have just nursed through the shop. This baby is fitted with a 1-inch, f 1/9 lens and a 3-inch f /4.5. There is a small synchronous motor driving the camera at 24 frames per second, and an outside magazine of 400-foot capacity. The latter is almost an exact copy of the standard Bell & Howell magazine, even including the light traps. If there are any of youse guys who are interested in such a rig, you might let me know. I don't know yet what the magazine will sell for, but it is a good one, with screw lids, and it will stand the gaff. There will be photographs available before long.

During the war, I had occasion to lubricate an instrument with vaseline, and could not take the time to tear it apart. So I went to a friend of mine, a doctor, and from him got an old hypodermic needle outfit. The needle could be inserted into an extremely small space, and a gentle pressure on the plunger forced the vaseline into an otherwise inaccessible place. I pass this idea on for what it may be worth.

How many of you fellows would be interested in a small, reliable speed indicator for your camera? One that will be thoroughly reliable, simple, and which will not interfere with your work. If there is enough interest

shown in such a device, I will undertake to design and manufacture it. But I don't feel like putting in a lot of time on the thing unless there will be a reasonable demand. I can see where it would be quite handy for those shots with wild motors, especially if you're afraid the batteries are beginning to get low. For goshsakes, let me hear about your reactions.

The other day I had occasion to use a densitometer in a local film laboratory. To my surprise, I found that with the scale of the instrument set to zero, the spot in the center of the field was quite noticeable. A simple adjustment of the proper wheel brought the instrument into accuracy again. While it is known that no two people will get exactly the same reading on the same density, the complaint on this instrument had been that the readings varied as much as five points. After the thing was properly adjusted, I got a reading of .24 and the regular operator got .25, which is pretty good agreement in anybody's laboratory. Better check on that densitometer—it only takes a little thing like that to cause serious trouble with variable density track development.

How long has it been since you thoroughly cleaned your lenses? When you do this, be careful not to use alcohol, since it will seep into the edges of cemented elements, loosen the Canada balsam which holds them together, and cause the lens to be sent to the maker for re-centering. (Which is expensive.) If you clean lenses, about the best stuff of which I have any knowledge is the lens cleaner supplied by Bell & Howell. When used according to the directions, it does a beautiful job. Be careful in handling the stuff, however, as it is a deadly poison. Wash your hands very carefully after using it.

It seems hardly necessary to warn photographers about

(Turn to Page 13)

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Screenings, Thither and Yon

By ALMA MAE BUTLER

AND so — here's Spring again; Spring and its kites, a new chapeaux, crocuses and dewy robins heralding the advent of summer. Obviously, after the parching we've endured for three successive summers, its approach this year is viewed with some misgiving.

We in these canyons of concrete and steel are too far from the earth to know the woes of our rural neighbors; we, who read of chinch bugs and droughts without knowing their true significance; we who are first to whoop-er-up when the price of our canned beans shoots skyward.

The most devastating thing is drought. It gnaws at the very vitals of human existence — the source of food supply. Nor does its depredation end there. In this country last year whole forests succumbed to its fiendish sweep; forests that for centuries withstood the rigors of nature became but an expanse of charred, misshapen stumps.

Canada paid heavy toll throughout its northwest region. From a sooty observation car that snaked in and out of tunnels through the Great Divide, I saw in a single day's ride from Banff to Revelstoke no fewer than four separate infernos. Most of them were 20 or 30 miles distant. It seems unbelievable that in a section where the winter temperature hovers close to 65 below, the heat that July day could be so intense. The thermometer on the platform at Golden registered 110.

Golden, that once glorious lumber queen of the Pacific Northwest, is now but a downtrodden, old crone jealously guarding her tattered remains. From her cliffside is visible the whole expanse of the Columbia roaring below. She belies those vivid tales by Curwood of her men of brawn who carved their names in such wild, unforgettable manner. The hum of her sawmills is silent. A few palsied creatures straggled about the depot; they who bestirred themselves at the sound of a locomotive, for an exchange of glances with those from the world beyond. In the depths of her hills were their progeny, wresting her silver and gold. Dark objects dotted the shores of the river; hopeful prospectors who swore by the pan.

For the past hour our attention had been centered on a particular cloud of smoke. From the vantage point at Golden it loomed before us in shafts of roaring flames. The drawn faces of the stragglers revealed the anxiety they felt. I was awestruck at the holocaust before me, being more accustomed to the havoc of mortals in a congested, urban world. A man boarded the train, entered the observation coach and levelled binoculars toward the west. He showed some inward perturbation.

"Started by lighting," he offered as I approached. "Thought it had died out but yesterday it began all over; covers 18 miles square."

"How far away is it," I asked.

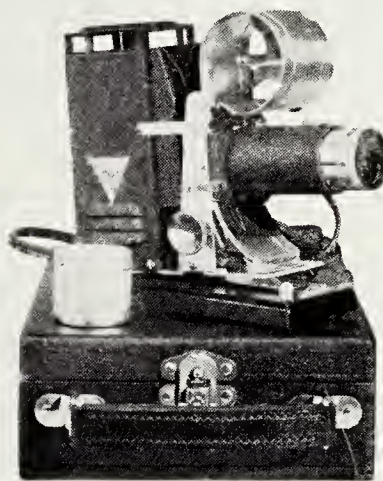
"Ten miles; near a settlement and headed here fast."

(Turn to page 14)

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Motion Picture Laboratory Practice

FOURTH INSTALLMENT

Gamma and Contrast

Aside from being an expression of the degree of development, gamma expresses also the relation between the brightness range, or contrast, of the subject and the transmission range of the negative, insofar as the brightnesses of the subject are represented by exposures on the straight-line portion of the D -log E curve. When gamma is equal to 1, the density differences are equal to the log-exposure differences, and the transmission range of the negative is

ties. This difference depends not only on the extent of development but also on the range of brightnesses in the subject. The greater this range, the greater the contrast of the negative when developed to a given gamma. It is thus entirely possible for a negative developed to a high gamma to have less contrast than another developed to a much lower gamma, but of a subject with a greater range of light intensities. Development to a constant gamma results in the same negative contrast only when the contrast of the subject is the same.

The Time-Gamma Curve

The relation between the time of development and gamma, for a given emulsion and given conditions of development, is obtained by developing a number of sensitometer exposures for different times, determining the gammas for the different development times, and plotting gamma as a function of the time of development. In Figure 11, for example, are the characteristic curves for sensitometer exposures numbered from 1 to 6, and developed for 2, 4, 6, 8, 10, and 12 minutes. The corresponding gammas are 0.50, 0.8, 1.02, 1.14, 1.20, and 1.24. Plotting these gammas against the developing times results in the time-gamma curve shown in Figure 12.

The time of development for any desired gamma may now be found by drawing a line from the required gamma parallel to the base until it intersects with the time-gamma curve. A line from the point of intersection, perpendicular to the base, cuts the time scale at the corresponding time of development.

Time-gamma curves are of value not only as a means of determining the time of development for a given gamma but also as an indication of the "processing latitude" for

the same as that of the subject. If a print is made from such a negative, and we assume a uniform illumination over the negative, the exposure range incident on the positive material is equivalent to the brightness range of the subject. When gamma is less than 1, the transmission range of the negative will be less than that of the subject. On the other hand, when gamma is greater than 1, the transmission of the negative is greater than that of the subject. The transmission range of the negative constitutes what the photographer speaks of as contrast. If both the maximum and minimum densities of the negative are within the straight-line portion of the curve, then gamma is proportional to contrast; however, if, as is frequently the case in photographic practice, the shadows of the subject are represented in the negative by a density less than that at the beginning of the straight-line portion, then the contrast of the negative is not completely indicated by gamma. Of course, of two negatives of the same subject and with the same exposure, that having the higher gamma will have the greater contrast.

Gamma is frequently confused with contrast in another way. The contrast of a negative is usually estimated by the difference between the minimum and maximum densi-

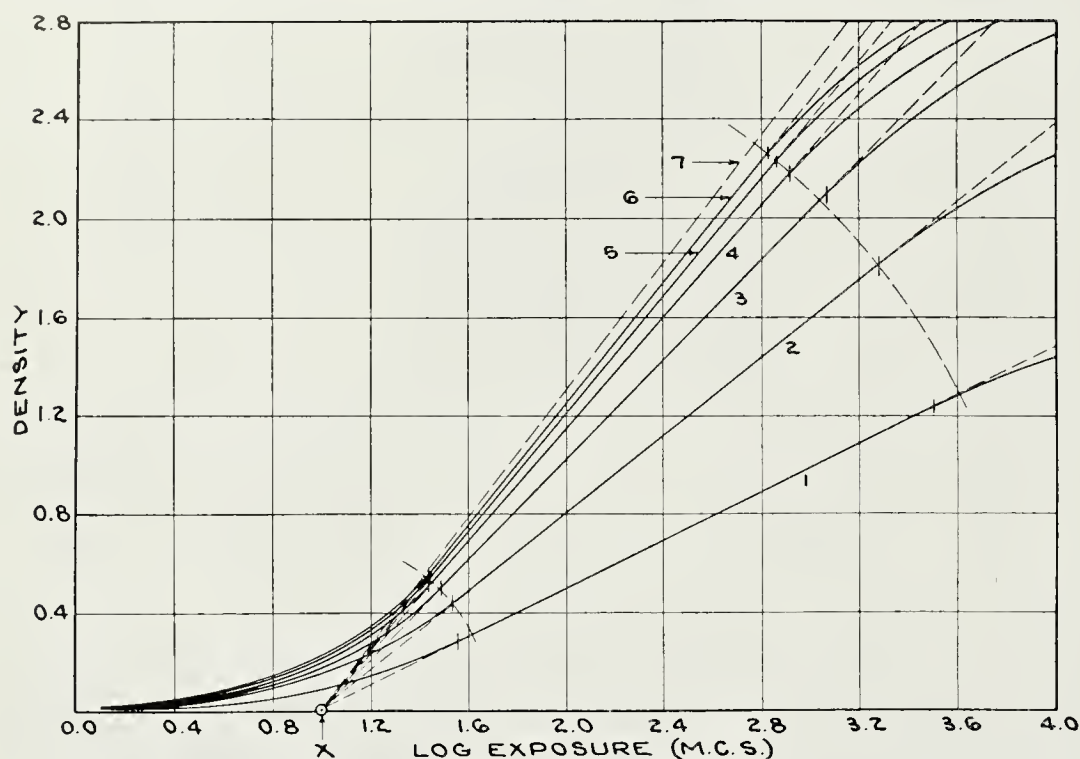


Fig. 11—Characteristic curves of six sensitometric strips, developed for 2, 4, 6, 8, 10, and 12 minutes.

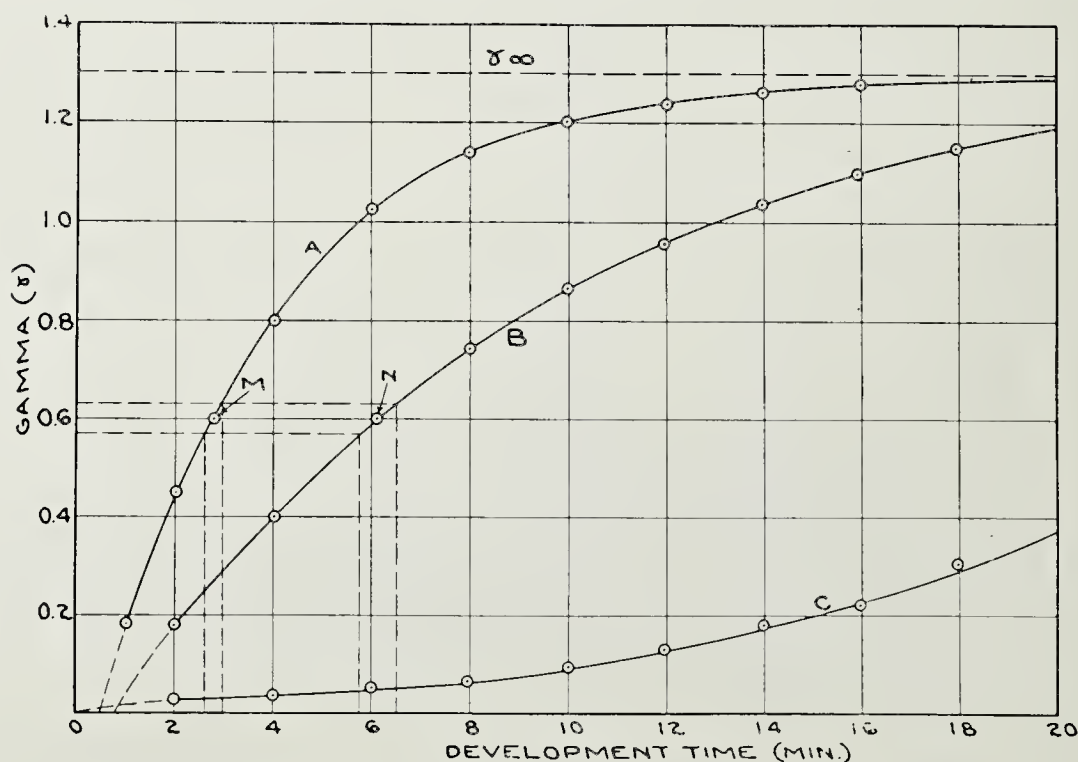


Fig. 12—Time-gamma curves obtained by plotting gamma against time of development: A—high rate of development; B—low rate of development. Curve C is the corresponding time of development—fog curve.

any particular emulsion and conditions of development. If a time-gamma curve is available for the material and processing conditions in use, it is a very simple matter to determine the permissible variation in the time of development (or processing latitude) when it is desired to control processing so as to obtain gamma values lying within certain prescribed limits. For example, let us assume that a gamma of 0.6 is required and the toleration allowable is plus or minus 0.03. The variation in time is found by drawing lines parallel to the base through the two gamma values; namely, 0.6 plus 0.03 and 0.6 minus 0.03. Where these lines intersect the time-gamma curves (*A* and *B* in Figure 12), perpendiculars are dropped to the development-time scale. In the case of curve *A*, the development time must be held between 2.6 and 3.0 minutes, thus permitting a total allowable variation of 0.4 minutes, which may be expressed as 2.8 plus or minus 0.2 minutes. In the case of curve *B* for the same gamma tolerance, the minimum time is 5.7 and the maximum 6.5, which may be expressed as 6.1 plus or minus 0.4 minutes. It is evident, therefore, that the allowable error in development time for the required precision in control of gamma is twice as great in the case of curve *B* as for curve *A*. Consequently, the greater the gradient of the time-gamma curve at any point, the more precise must be the control of processing conditions in order to maintain a given tolerance in gamma.

DEATH TAKES MAURICE J. CAPLAN

Maurice J. Caplan, President of Metropolitan Motion Picture Company of Detroit, Michigan, died Sunday evening, April 18th, in Henry Ford Hospital. His death was a shock to a host of friends in the motion picture business as well as club and sport circles of city and state.



Maurice J. Caplan

He became ill last October while playing golf and was progressing favorably after two operations, he suffered a relapse Thursday and was rushed to the hospital, an operation was performed Friday noon, but he never rallied.

"Cappy," as he was known to his friends was an ardent sport fan and for 17 years never failed to go south with the Detroit Tigers in the spring of each year. Golf, hockey, football and boxing were sports in which Mr. Caplan took a keen interest. He will be buried in Woodmere Cemetery.

TECHNICALLY SPEAKING

(Continued from Page 10)

the necessity of keeping lenses clean. But every once in a while we run up against lenses which are coated with a scummy deposit which certainly plays hob with clean, crisp negatives.

Next to the lens cleaning outfit mentioned above, the Japanese tissue supplied by certain lens makers is good for wiping off the surfaces. Next in line is a well washed, clean, lintless linen handkerchief.

It is now possible to have surface scratches polished off of lenses, but I very much question whether they are afterward as good as when new. It seems to me that the removal of even a microscopically small layer in polishing will affect the original formula to which the lens was ground. Moral—don't let 'em get scratched.

Adios! See y'all next month.

ANOTHER SITDOWN!

Management and labor have had quite a few arguments lately. So—we, the employees of Chicago Film Laboratory, have decided to SITDOWN and tell our Employers a thing or two!

During the depression, we had no layoffs, no reduction in the working force. We know how tough it was for the management to carry us, and we appreciate it.

We appreciate, too, the several salary increases, and the many employee benefits which have been put into effect recently.

Chicago Film Laboratory has enjoyed unusual success in the past few years, and dog-gone it, we're going to see that it continues! That's our pledge!

**The Employees of
Chicago Film Laboratory, Incorporated**

SCREENINGS

(Continued from page 11)

"What about that one?" I pointed to the smoke cloud north.

"No danger there; just second growth stuff; nobody near. It won't do anything unless it gets worse; just started a few days ago." He returned his sharp gaze westward. "That's the one that's worrying us; it's been raging three weeks, and getting out of control."

"What is done to control such things," I questioned with some concern.

"Every person is subject to fire duty up here; every man on this train could be drafted. I'm headed for Revelstoke now and tomorrow I'll be back with 200 men. We're going in there to fight."

"Mounties?" No Canadian heroism is quite genuine to me without its Mountie performance.

"No, the Redcoats are not called to fire duty."

I accepted his widespread knowledge. "You've lived here always," I ventured.

"No; I live in New York; just come here three months of the year for the salmon that runs down there and the meat that roams up there." His bared hand swept the expanse of river and the forest that lay beyond. There was a lull in the conversation. "I don't suppose you've ever seen the like of this," he glanced down at my trig city get-up.

"Oh, perhaps; though not quite." And then I related my one experience.

It was the occasion of my summer's sojourn at a small northern Michigan resort. At Central's behest I became Paul Revere bearing news of an onrushing blaze. Smoke was in the air but it came from no specific direction. Winged by the horror of flames nipping at every coat-tail, it seemed out of order that those creatures of hard-scrabble should stop first to eat before taking to pick and shovel. When they did sally forth, it was like a passing parade; with bugle, fanfare and fife and, not to be out-done — there, trailing behind, were their various and sundry mates. I purposely avoided mentioning the fact that with each bold hero went his jug of happy elixir — for that pause in the day's occupation. Well, in the melee we women got lost; me thinks it was by masculine connivance, and — there was nothing between us and the wolfish beyond but a rude, tumbled-down, log cabin. My echoed "Hull-oo" summoned a man, wan and gangling, with a myriad of curious cherubs. "Say, which way is the fire?"

"What fire," he drawled out in a lackadaisical way. Apparently the ritual of being burned alive was worthy of glorious acceptance.

"Why, the whole country's afire," I cried, by no means on sizzling bent.

"Oh y-e-a-h," he just answered, with the same dumb concern — then withdrew with his bevy of hopefuls.

My listener smiled. "Well, they're like that up here, too; can't root 'em out; they die at their posts." He paused for a moment to continue, "But that's what makes the pioneer, and the pioneer's what makes the country, and there's nothing we can do. So wot!"

I saw no more of the man after Revelstoke. Other phenomenal sights came and went with equal absorption. Weeks later I returned to the States, where I read many reports of that fire near Golden, and of the hardy pioneers who probably sallied forth with fanfare and jug — for aught we could do; So wot!



Scene from Pioneer Pictures' romantic comedy, "Dancing Pirate," an RKO release. Designed in color by Robert Edmund Jones. Directed by Lloyd Corrigan. Photographed by William Skell.



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Cinemabiography

SAM SAVITT entered the motion picture business in 1915 at the age of 16 with the American Commercial Film Company, 163 West Austin Avenue, as laboratory helper, remained there for three years then went to The Brinner Film Laboratories, after one year went to the Ebony Film Company on Milwaukee Avenue, as lab man, paper hanger and general studio flunky. Leaving the Ebony he went to Milwaukee, Wisconsin to take charge of a trailer concern, photographing and developing trailers. In 1921 he left Milwaukee and joined the Diamond Film Company, on Lincoln Avenue where he remained for two years. In 1923 he returned to the Brinner Film Laboratories where he was put in charge of the entire plant then engaged in the making of single reel commercials. In 1926 Savitt left Brinner to go into business for himself. After two years, having lost money and his desire to be an executive, he returned to the motion picture business, was employed by the Chicago Daily News Newsreel, now Universal as staff cameraman which job he holds at present. In 1931 Sam was loaned to Universal Production Company to shoot the sequences of "Brown of Culver" at Culver Military Academy.

Among some of the important Newsreel assignments he covered are: The Dirigible Macon's First Flight, Arrival of General Balbo, Dillinger, Stock Yards Fire, Touhy Gang Roundup, Insull Trial, Lansing Hotel Fire, Florida Hurricane and Ohio Valley Flood. Sam Savitt is married and father of two lovely girls, age nine and three.



Sam Savitt

VI'S KRAX

Did you hear the one about the famous lighting man that had one of his lamps darkened?

Congratulations, Lou Kramer, your brother certainly plays a great game of Badminton.

What about a baby picture contest? A certain Newsreeler says his baby daughter is the prettiest baby in the whole world. Yes, the Newsreeler hails from K. C.

A certain florist sent the wrong amount of roses the other day to a certain manager in the film business. Should of been three dozen instead of four.

How about pictures for the front cover?

Well, well, spring is here, so you advertisers, producers, raw stock salesmen, soundmen, cameramen, assistant cameramen, title cameramen directors, managers, business managers, stenographers, secretaries, oh just everybody in the film business, get out your garden tools, tennis rackets, golf clubs or swimming suits and enjoy the great outdoors. See you again next month if I'm not too stiff from my first game of tennis.

Remember what the Chinaman said: "One picture is worth a thousand words."

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FOR SALE—Camera motors, Pola screen holders, any make camera. Apply "Doc" Gantz, Local 666.

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FOR SALE—Best cash offer takes one or all of five Capitol continuous 16 mm. projectors excellent condition. Box 304, Cinema Digest.

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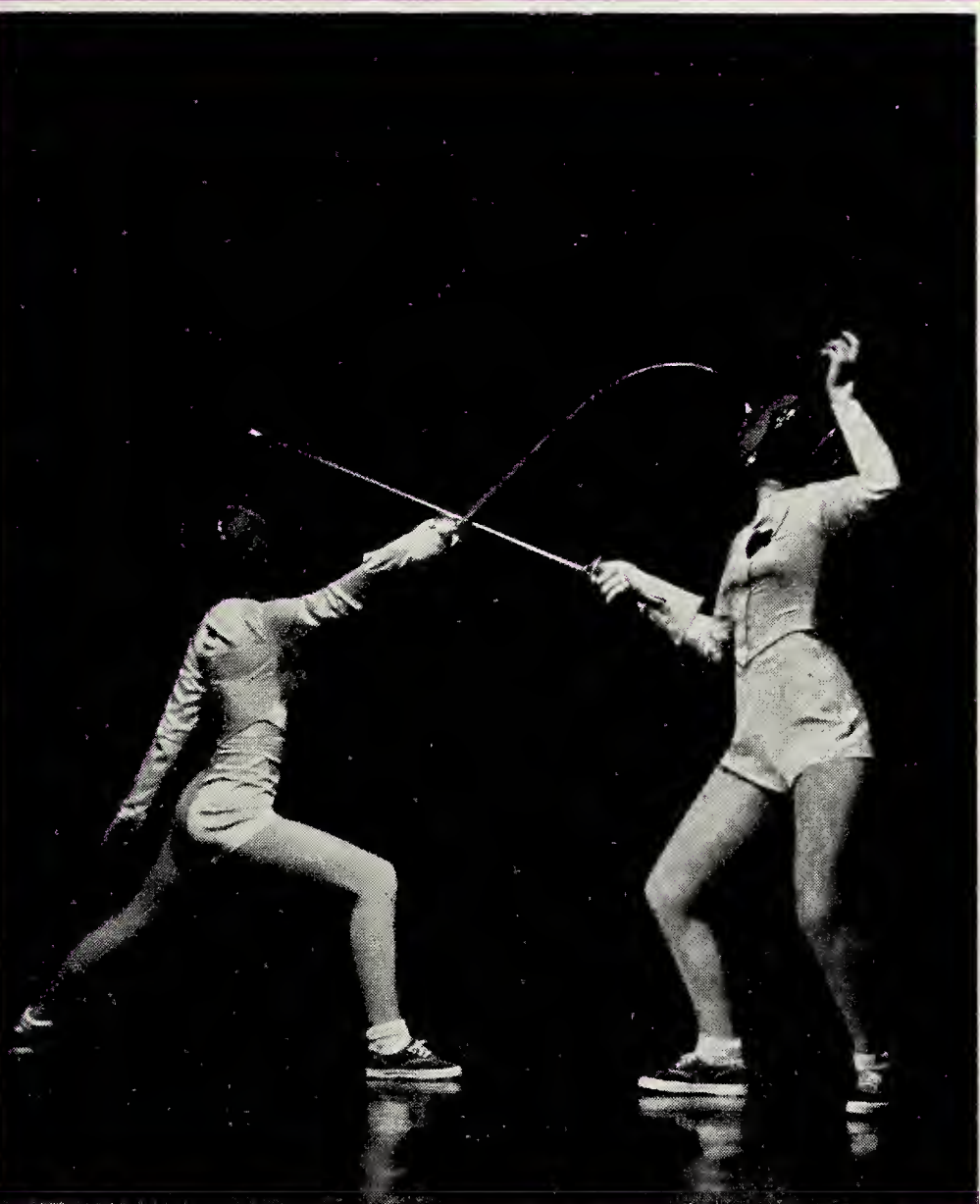
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Photographed by Robert Duggan I.A. 666 for Critchfield & Co.

SEPTEMBER, 1937

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No. 9

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By W. H. S.

UNEMPLOYMENT INSURANCE

ON July 16, the Social Security Board approved the Illinois Unemployment Compensation Law.

The Board announced that with the action of Illinois all of the forty-eight states, the District of Columbia, and the Territories of Alaska and Hawaii had enacted legislation providing unemployment compensation for the jobless in accordance with the Social Security Act.

This is indeed an achievement for the progressive policy of the American Federation of Labor.

After mature consideration the 1932 convention of the American Federation of Labor adopted with practical unanimity the recommendation of the Federation's Executive Council in favor of unemployment insurance. When the convention took this action only one state, Wisconsin, had provided unemployment insurance laws.

In 1934, President Roosevelt named President Green and other representatives of the American Federation of Labor to serve in an advisory capacity on the President's Committee on Economic Security, whose report the President used as the basis for his message to Congress early in 1935 recommending the enactment of the Social Security Bill which included a section providing compensation for the unemployed.

From the time the bill was introduced until it was enacted into law and signed by the President in August, 1935, the American Federation of Labor represented the united front of the labor movement in favor of the measure.

And now, in less than five years after unemployment insurance was sponsored by the American Federation of Labor and in less than two years after the unemployment compensation provisions of the Social Security Act became the statute law of the land, every state and territory has passed the necessary legislation to protect workers from suffering during periods of unemployment.

The Social Security Board estimates that nearly twenty-one million workers are in employment covered by the fifty-one approved unemployment insurance laws "which provide compensation to employees who lose their jobs through no fault of their own, the amount of compensation and the length of time for which it is given varying in the different states."

In commenting on the achievement of this legislation,

A Letter

By J. Roy Hess

Dear Folks:

You hate me that I know,
 Nobody wants to see me grow,
 Yet my descendants, far and wide,
 Are scattered o'er the country side.
 Just look along the highway scene,
 My gold looks well in sward of green,
 The tourist thinks my leaves are fine,
 He uses them for home-made wine.
 Though warred upon in every way
 I still am here, and here to stay.
 I leave each Fall, but never fear
 I'll be on hand the coming year.
 Good luck to you, and blessings fine,
 From

Truly yours,

A Dandelion.

Arthur J. Altmeyer, chairman of the Social Security Board said:

"Greater progress has been made in the enactment of unemployment insurance laws in the past two years than has been made in workmen's compensation (for accidental injury) in the past quarter century."

And it is not irrelevant to emphasize that in every state the enactment of unemployment insurance has had the one hundred per cent backing of the millions of working men and women who constitute the American Federation of Labor.

FRED J. DEMPSEY DIES

We are very sorry to announce the passing of Brother Fred J. Dempsey, Secretary and Treasurer of the I. A. T. S. E. & M. P. M. O. which important position he has held for six years. He has been a member of the General Executive Board for eighteen years. According to information received he died from a heart attack August 15th, at his home at Ocean Bluff, Massachusetts. He was buried Wednesday, August 18th, from the home of his sister in Dorchester, Massachusetts.

The Executive Board of the International Alliance attending their summer meeting at Seattle, Washington, departed by airplane to attend the funeral, the entire staff of General Headquarters in Washington also attended.

A. B. Jewett, vice-president in charge of production and sales of Industrial Pictures, Inc., advise they are now occupying their beautiful new studios at Cadieux Road and Warren Avenue, Detroit.

The company, backed by leading Detroit capitalists, will start production of commercial film in a couple of weeks.

Louis Krouse, Assistant to International President George E. Browne, was elected Secretary-Treasurer of the I.A.T.S.E., to succeed the late Fred J. Dempsey, by the I. A. Executive Board meeting in Seattle, Washington.

Scientific Illumination Mensuration

By SAM CITLITZ

THE advent of the photo-electric cell marked a new era in the field of actinometers. Previous to the photo cell the human element played an important part in determining the actinic of an illuminated object. The method of matching the color of a known constant against the color (color temperature) of the unknown, while widely used, was hardly the most accurate in view of the fact that many people do not have the same visual response to the same colors. The photo cell, however, afforded a scientific method not involving the human element, making possible highly accurate measurements.

For the purpose to be described it was found necessary to utilize a cell activating the grids of an amplifier circuit, rather than the photronic type requiring no outside excitation. Using the conventional circuit designed for photo-electric operation, a highly sensitive milliammeter was placed in the plate circuit of the tube. All measurements were made using the milliamperes as the unit rather than the candle-per-square-foot standard in order to avoid integrating the unit for this standard, thereby simplifying the actinometer. A lens system focusing the image upon a ground glass was rigged up, a cross-line marking the spot on the glass where the aperture would fall when slid out of the field and the cell put in place.

A standard Bell and Howell was set up with two one thousand watt type T-20's for the illumination, against a plain white card, using a standard 50 mm. lens. The actinometer was placed near the card and the lights adjusted to give the minimum reading on the milliammeter. A stick was used to determine the balance between the two lamps. Increasing the illumination to bring about a five milliamperes increase in each step, five feet of film was exposed and slated for identification. Each succeeding take was increased by five milliamperes until the limit of the milliammeter was reached. The film was then unloaded and developed to the gamma specified by the cinematographer. In this case it was developed to .70.

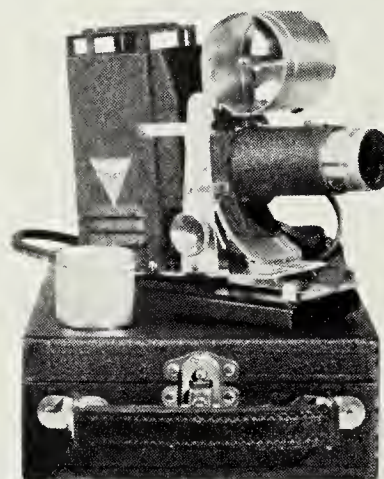
The film was exposed, developed to the determined gamma, and then read in the densitometer. The sensitometric curves drawn provided the key for the exposure measurements. As is generally known, the exposure logarithms form the abscissas of the graph while the densitometer readings form the ordinates. The densitometer readings taken were then matched against the readings on the actinometer producing those densitometer readings, and marked in milliamperes in their respective points as the ordinates of the graph. The lowest point and the highest point of the second region of the curve—the region of normal exposure—were then extended to the left-hand side of the graph, where the readings of the milliammeter are placed. The points at which these two extended lines intersect on the scale of milliammeter readings determined the lowest and the highest readings of the milliammeter within the limits of normal exposure for the specific gamma to which that particular film was developed. In other words, any readings within these two points would produce a correct exposure on film developed to the predetermined gamma, assuming, of course, that the shutter sector-lens aperture ratio is kept at the constant at which the calibrations were exposed.

For the sake of convenience, to eliminate the necessity of taking a cumbersome electrical system onto the set while

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Irving Mack of the Filmack Trailer Company, is reaching out to Hollywood for additions to his fast growing organization.

"Hen" Stowell, who for many years was in the Title and Special Effects Department at Paramount, has joined Filmack as Production Manager. Stowell is well known in the studios for his artistic title work and clever animations!

He is admirably suited to his new duties with Filmack and should prove to be a decided asset with this Company, which concentrates entirely on Special Trailers for Showmen!

lighting, the two figures thus determined were taken and the lamps again placed against a white card to reproduce the light conditions necessary to produce the readings obtained. A Weston meter reading was taken and noted for these two conditions, and the whole process then resolved itself to the use of the Weston to determine the lowest light level consistent with normal exposure, using this as a lighting "base." The modeling lights were then placed according to the cinematographer's sense of light balance rather than to some mathematical coefficient of balance which would merely have attempted to mechanize an art that will not yield to mechanization. The high point on the Weston can be used to determine the fact that none of the important high lights go beyond the point of normal exposure, even in a very high key.

Or, should the cinematographer desire not to work at a dangerously low level, he may by this system raise his level to any desired point in the second region of the sensitometric curve and maintain this point consistently.

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business —



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OSCAR B. DEPUE develops his negatives on the banks of the Iguassu River in the heart of South America in the year 1910. (Photos enlarged from 35mm negative developed on this same equipment)

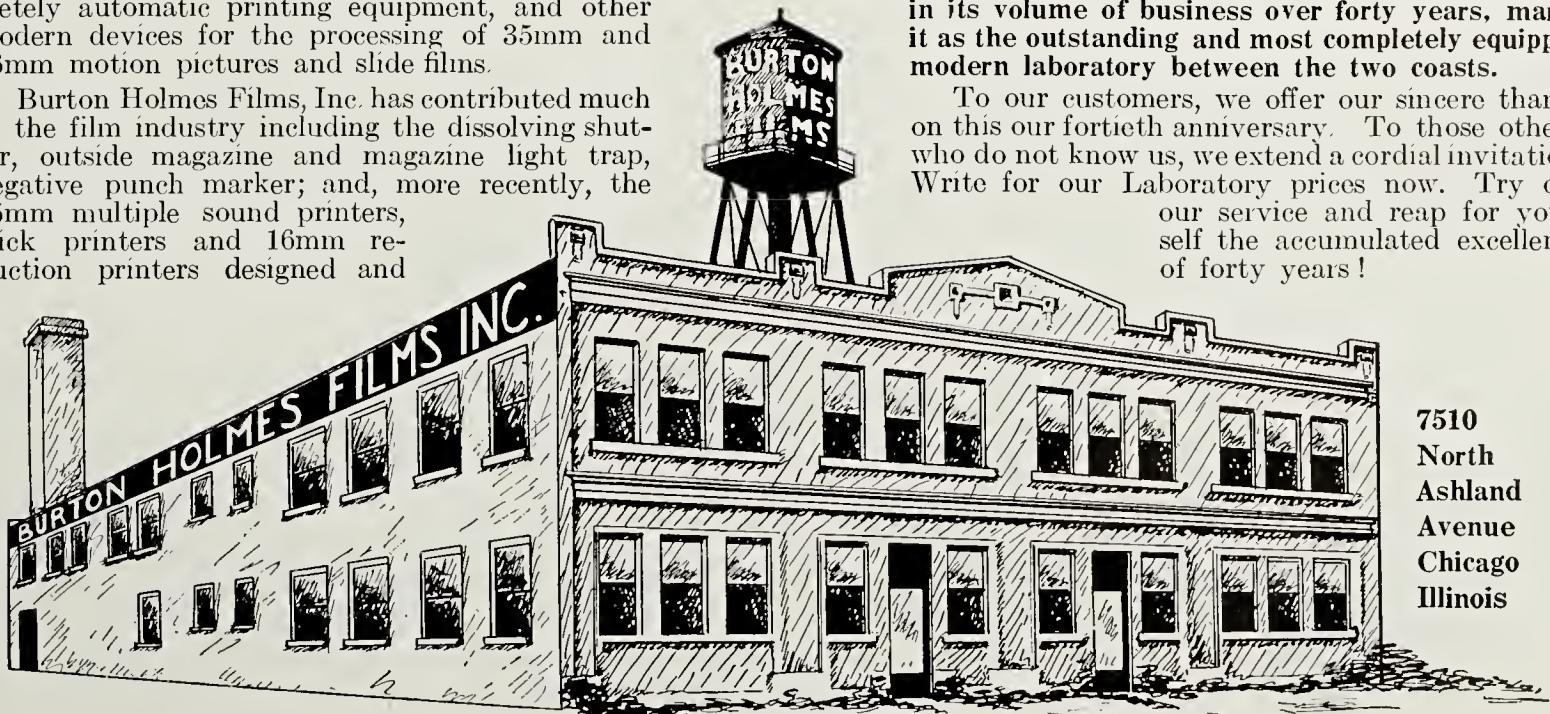
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Motion Picture Laboratory Practice

EIGHTH INSTALLMENT

Eastman Super Sensitive Panchromatic Negative Motion Picture Film (No. 1217)

The material is characterized by an exceptionally high speed with tungsten illumination. It is only slightly faster than Eastman Negative Motion Picture Film with daylight, or light of daylight quality, but it is approximately

On exteriors the high color sensitivity of this film results in good differentiation in color values, and filters may be used in accordance with the effect desired, as the factors are relatively low even for deep red filters.

Filter Factors for Eastman Super Sensitive Panchromatic Negative Motion Picture Film (No. 1217) in Daylight

Aero 1	1.25
Aero 2	1.5
3N5	4
5N5	5
G	3
23A	3
N.D. 0.25	1.8
N.D. 0.50	3.1

Eastman Super X Panchromatic Negative Motion Picture Film (No. 1227)

This film was introduced early in 1935. Sensitometric data are contained in Figure 20. In general, it is similar to Eastman Super Sensitive Panchromatic Negative Motion Picture Film, except in speed and in the time of development required for a given gamma. When the two materials are developed to the same gamma, Super X is approximately 50% faster than Super Sensitive. The time of development for different gammas is shown in the time-gamma curve (Figure 20). As Super X is inherently of lower contrast than Super Sensitive, the time of development for any required gamma is necessarily longer. The actual difference in the time of development for any particular gamma depends upon the developing formula and conditions of development. Eastman Super X differs only slightly from Super Sensitive in color-sensitivity characteristics (Figure 18), and despite the increased speed there is no material difference in graininess. It is well adapted to general production requirements and especially to newsreel work when the light is poor as well as to actual night exteriors and projection-

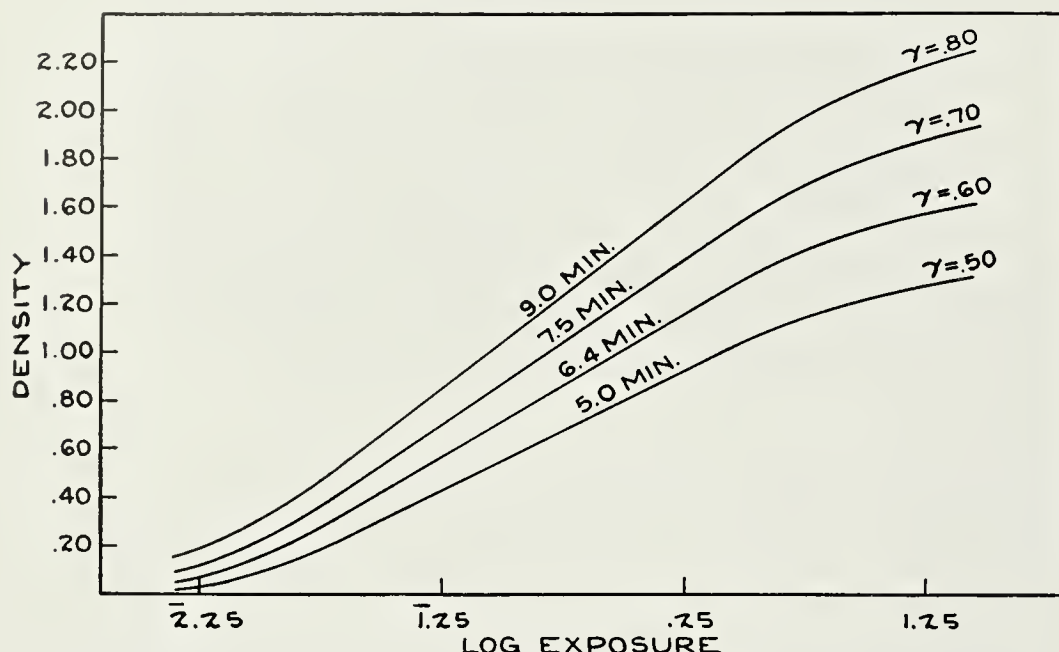
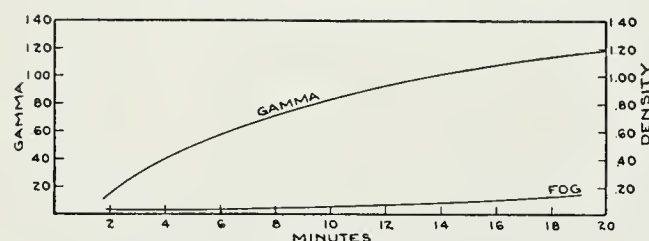


FIG. 19—Above: Characteristic or $D\text{-log } E$ curve of Eastman Super Sensitive Panchromatic Negative Motion Picture Film (No. 1217).



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

twice as fast as the latter with tungsten illumination. Typical characteristic curves and a time-gamma curve are shown in Figure 19, and wedge spectrograms in Figure 18.

It is evident from the spectrograms not only that Eastman Super Sensitive Panchromatic Negative Motion Picture Film has a high total sensitivity, but that its response is exceptionally high in the yellow, orange, and red portions of the spectrum. The energy of the shorter (violet and blue) wave lengths in tungsten illumination is very low, but it increases rapidly toward the longer wave lengths at the red end of the spectrum. Thus, the spectral region which is represented in tungsten illumination by a comparatively low energy level is that to which a non-color-sensitized material, such as Eastman Negative Motion Picture Film (No. 1201) is most sensitive, while the major part of the illumination is in portions of the spectrum to which the film is practically insensitive. However, with a material such as Eastman Super Sensitive Panchromatic Negative Motion Picture Film, the sensitivity is high in the spectral region in which the energy level in tungsten illumination is also high. In other words, the color-sensitivity characteristics are to some extent complementary to the spectral-energy distribution characteristics of tungsten illumination, so that materials of this type are especially suitable for use with tungsten illumination.

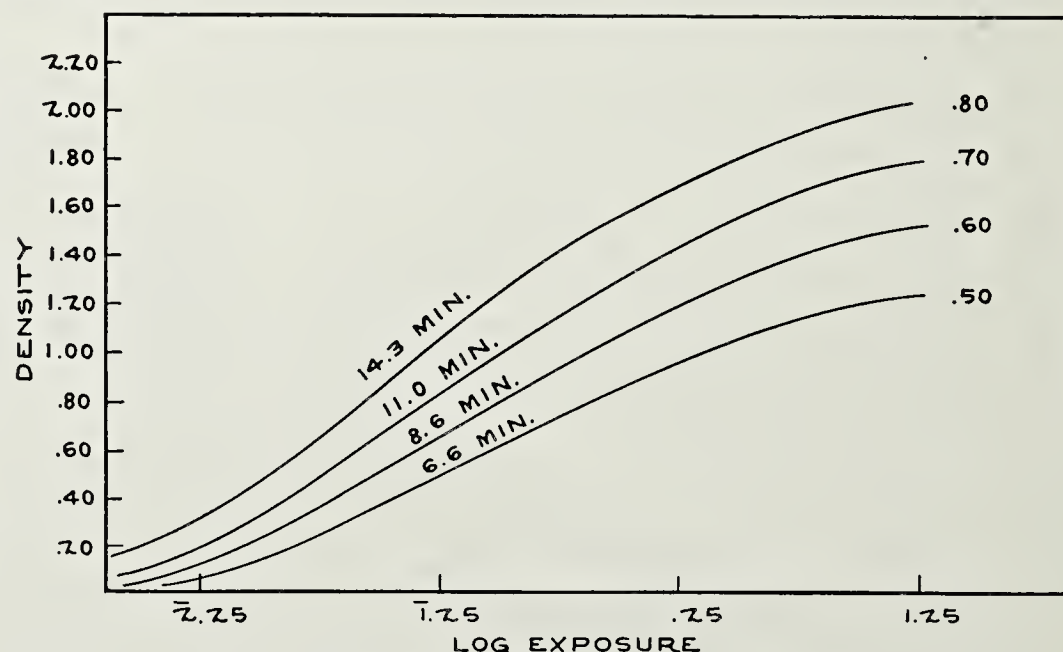
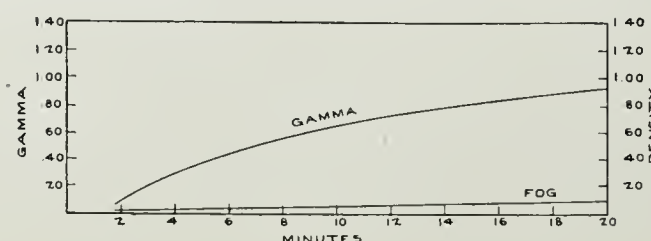


FIG. 20—Above: Characteristic or $D\text{-log } E$ curve of Eastman Super X Panchromatic Negative Motion Picture Film (No. 1227) in D-76.



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

background composite exposures.

Filter Factors for Eastman Super X Panchromatic Negative Motion Picture Film (No. 1227) in Daylight

Aero 1	1.25
Aero 2	1.50
3N5	4
5N5	5
G	3
23A	4
25	5
58	6
47	5

Gray-Base Film

Difficulty is sometimes experienced in photographing scenes in which bright lights appear, due to the halo which surrounds such objects in the picture. This halo is due to two causes: (1) irradiation, or the spreading of light within the emulsion; and (2) halation which is produced by the reflection of light from the rear surface of the base back into the emulsion. The halo around bright objects in the picture, so far as it is due to halation, may be improved or prevented entirely by backing the emulsion support with a light-absorbing substance which will prevent the reflection of light back into the emulsion. For motion picture work a soluble backing in the rear of the film is not desirable, and, therefore, in 1931, the Eastman Kodak Company introduced gray-base film, in which the backing is an integral part of the film base and involves no danger in processing. The increased density of the negative (approximately 0.25) is readily compensated for by increasing the printing exposure.

Eastman Background Panchromatic Negative Motion Picture Film (No. 1213)

This material is designed especially for negatives from which positives are to be made for background projection. It has an extremely fine grain—an important feature, since it prevents an appearance of graininess and lack of definition in the background. In Eastman Background Negative Film (No. 1213), a fine-grain material has been produced without sacrificing any of the requirements of a satisfactory negative material excepting high speed. Its color sensitivity, latitude, and general emulsion characteristics are similar to those of Eastman Super Sensitive Panchromatic Negative Film (No. 1217), but it requires approximately twice the exposure, with either daylight or tungsten illumination.

The filter factors are the same as for Eastman Super Sensitive Panchromatic Negative Film (No. 1217). Gamma, for given conditions of development, is slightly greater than with Super Sensitive. This is usually advantageous, as positive contrast slightly greater than that employed for release prints is favored for the background positive in order to compensate for projection losses and those resulting from stray light reaching the background screen. By developing the background negative for the same time as Super Sensitive, a higher gamma is obtained, and prints developed to the regular positive gamma have the higher contrast desired for background projection.

Sound Recording Materials

The various methods employed in recording sound on the film are too well known to those engaged in motion picture production to require a detailed description in this work. Those not acquainted with the subject should consult "Recording Sound for Motion Pictures," published by the McGraw-Hill Publishing Company, Inc., New York (1930).

The methods of recording in commercial use result in

two types of sound record, known as variable-width, and variable-density. In the first mentioned, the film is moved at a uniform velocity past a slit, or an optical image of it, and by suitable means the length of the slit is modified so that the dimensions of the exposed area vary, producing a sound record of the type shown in *A* of Figure 22. With this type of recording, the exposure is constant, both factors—namely, intensity and time—remaining unaltered. In variable-density recording with the light-valve, the width of the illuminated slit, or its optical image, is modified in such a way that the *time* of exposure is varied, while with

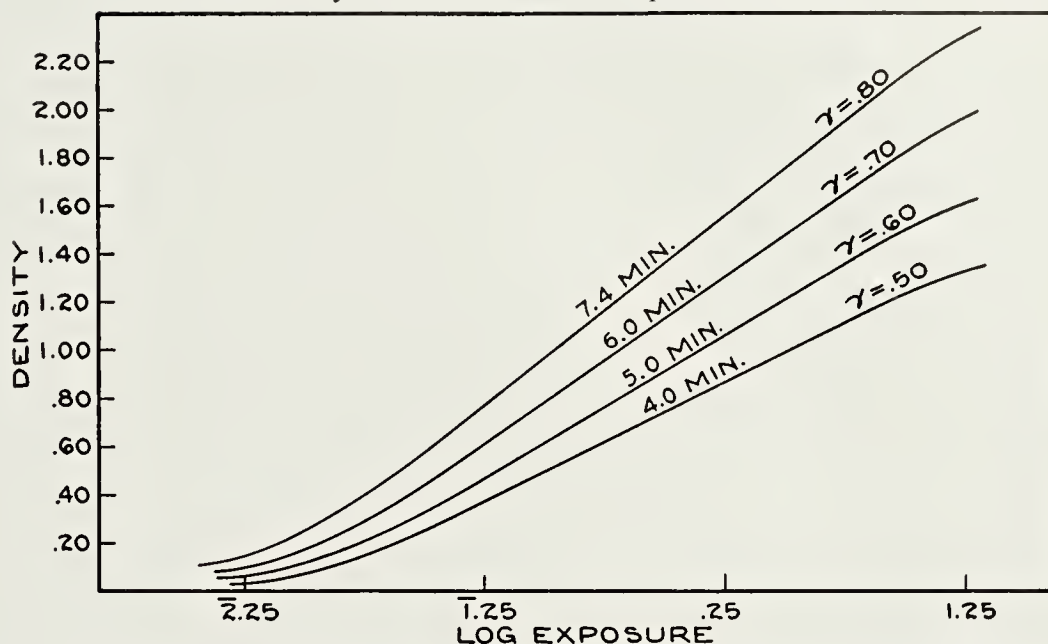
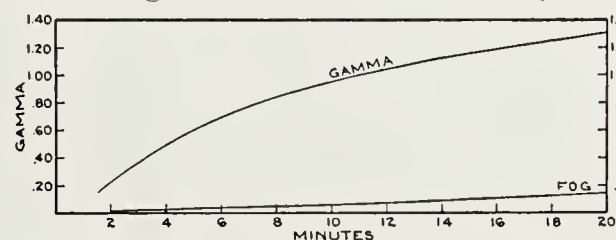


FIG. 21—Above: Characteristic or *D-log E* curve of Eastman Background Panchromatic Negative Motion Picture Film (No. 1213) in D-76.



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

the "glowlamp" recording the width of the slit is fixed, but the *intensity* of the light incident thereon is varied. Thus, in the variable-density record the modulated exposures are represented in terms of density, while in variable-width recording the area exposed, and not the density, varies (*B* of Figure 22).

A sensitive material for variable-density recording should have a high degree of resolution and wide latitude at a comparatively low gamma, with sufficient speed to permit satisfactory exposure with existing equipment. High resolution is necessary in order that the structure which constitutes the sound record, and on which the quality of the reproduced sound depends, may be correctly reproduced. Closely allied with high resolving power is freedom from irradiation, or scatter of light within the emulsion, and halation, the reflection of light from the back of the support, as both of these affect the sharpness of the image. A comparatively wide exposure range is necessary in order that the variation in exposure produced by the recording mechanism may be properly recorded by the photographic material. All of these desirable qualities must be obtained at a comparatively low gamma.

From the standpoint of the emulsion maker, it is difficult to make an emulsion having the high degree of resolution required for the best results and at the same time retain a sufficiently wide exposure range at a low gamma, as unfortunately these two factors bear, in general, a reciprocal relation. Eastman Sound Recording Motion Picture Film (No. 1359), however, meets these stringent requirements admirably when developed in a negative developer, such as Formula D-76. The sensitometric char-

(Turn to Page Thirteen)

Screenings, Thither and Yon

By ALMA MAE BUTLER

SEPTEMBER in Paris! Wonder what it's like to stroll along the banks of the Seine, watching the sun rise over whatever the sun rises over. Notre Dame, the Louvre and the Latin Quarter probably mean no more to the French tourist than one of our own little jaunts down to Turkey Run. Just mention Paris to a galloping American and watch him forget his years.

Especially me. Why, I've dreamed of seeing Paris ever since I was a thing in pigtails trying to pick berries of a summer when my style seemed that of Bernhardt. I was lucky to get out to Waverly Park for a turn on the whirly-gig.

But now I'm packing for Paris—Paris and its thing-amajigs.

As if Paris, or all France for that matter, has anything to outshine that old skate, Niagara, and its beloved claim on those shy, little, connubial first blushes. I've been drenched in the mists of Niagara so often I ought to claim squatters rights. Then there's the Natural Bridge, where canned music reverberates throughout the caverns to give one the celestial creeps. I know the ditty so well I whistle it under my shower.

We Americans are too restless. But show me the American who denies that, albeit one has done every stitch of these United States, from the Bad Lands of Dakota to worse lands in Alabama; from the rocks off the coast of Maine to the cactus plains out in Kansas—one might still wish to see Paris.

Who wouldn't risk the flail of a turnstile that gets him at so much per whack, just for the joy of gaping up another Avenue of Flags—even trudging those footsore miles? Who wouldn't wish to take in the "Streets of America" that doubtless are paved with gold, and catch himself being gloriously seduced into one of those funny, little hideaway peep-shows, that probably is as prosaic as something from an old nickelodeon. There'll surely be a Greenwich Village, nestled somewhere near Old Cheyenne, but the thrill of the Fair will be a hamburger of horse shaved to caress a bun. And the snack that will be worth the show is the thing they got up to emulate that fan



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sandwich, Miss Rand.

Oh sure; I'll visit the Louvre, and take a run into Notre Dame, but I want to know more about gigolos and get the low-down on this "cherez la femme." I'm going out scalping for that scheming horde that turn out those crazy hats, and throw out a missile to that heartless lot that dictate the width of our hems.

So; here's to the stroll along the banks of the Seine, awaiting for the sun to rise, and all those white lies when I tell of Niagara—cracking it up to the skies.

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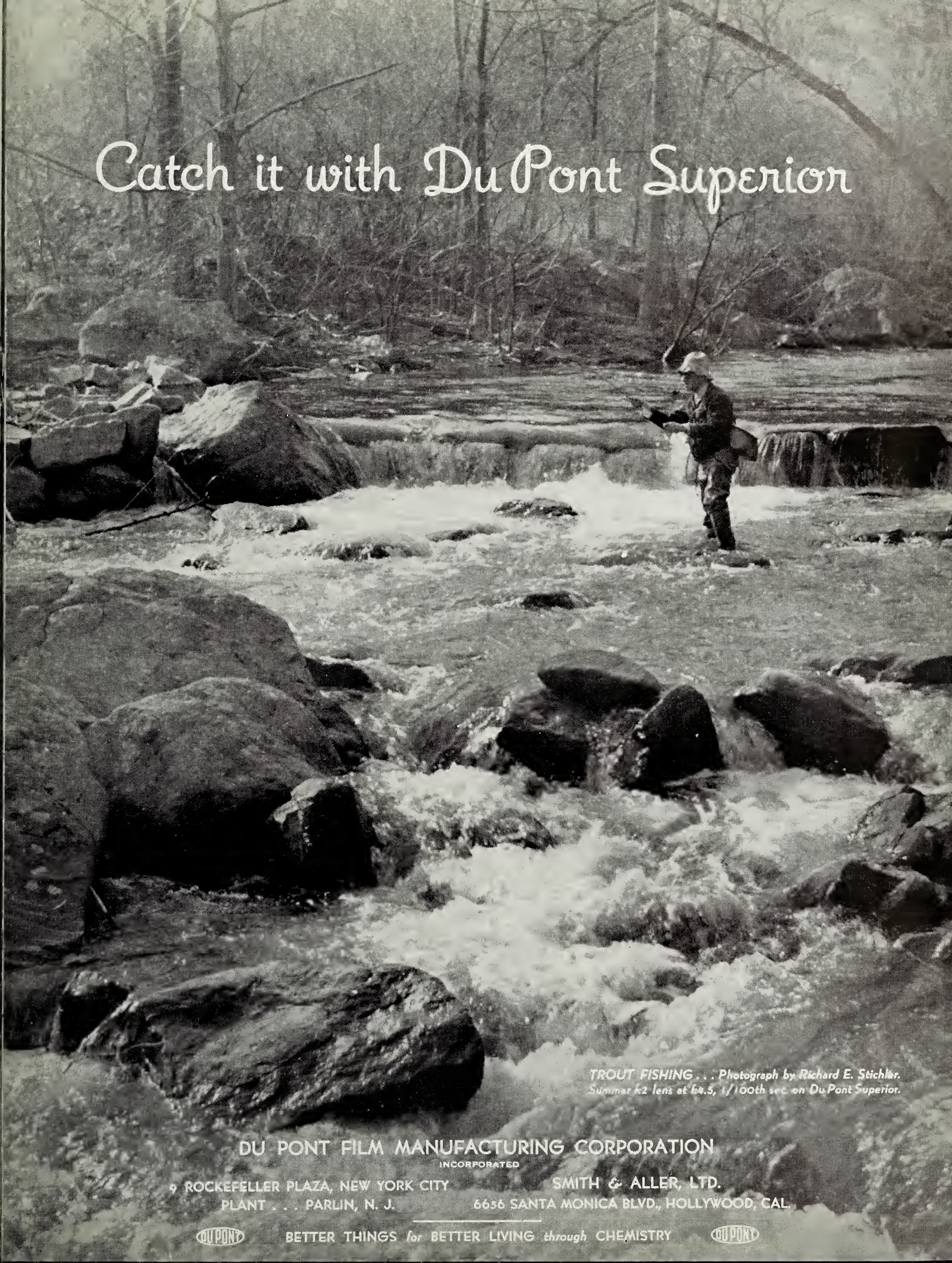


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*TROUT FISHING . . . Photograph by Richard E. Stichler.
Summar K2 lens at f4.5, 1/100th sec. on Du Pont Superior.*

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BETTER THINGS for BETTER LIVING through CHEMISTRY



THE ELEMENTS OF TELEVISION

By C. P. MEEK

Editor's Note: The articles on Television, by C. P. Meek, have now reached a point where the principles underlying television "cameras" are being discussed. The theories of their uses should be interesting to motion picture cameramen and all such are urged to become familiar with them.

Section XXXIII—The Uses of Magnets in Cathode-Ray Tube Service—The Various Methods of Moving the Spot on the Screen—Magnetic Deflection

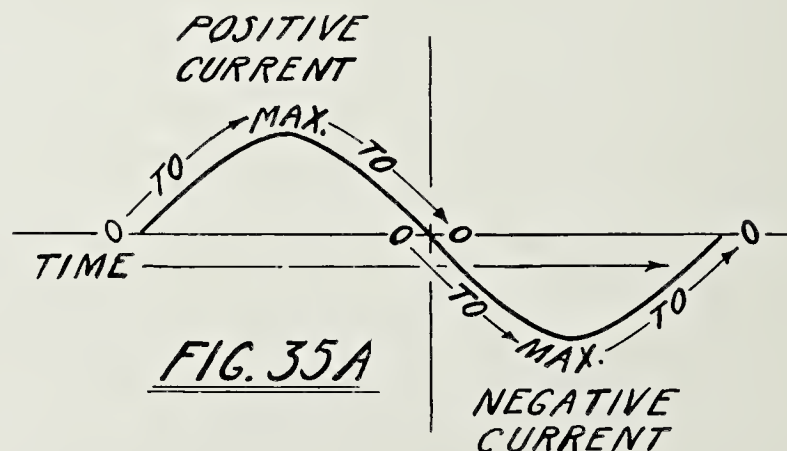
In the manufacture of cathode-ray tubes, there is sometimes difficulty in arranging the various elements within the tube so that the beam will hit the exact center of the fluorescent material. This condition can be corrected by placing a small magnet near the tube to draw the ray into its correct starting position. This can be overdone, since a strong magnet might bend the beam so much that any movement by other required forces would be distorted. To obtain television images the beam must be free to move all over the screen at definite speed and in a certain order, and this freedom of movement must not be interfered with. Care must, therefore, be exercised in the use of a magnet to place the spot in its proper starting position.

The spot can be moved about the screen in various ways so that the variations of brilliancy on the fluorescent material may fall into the picture in their proper places, even as they did with the Nipkow disc which was placed in front of the neon tube. (See sections XII to XVI.)

One of the methods of moving the spot is magnetic, since it was learned that a cathode-ray would follow a magnet when it was brought into its vicinity. Another of

pole of the magnet is directed toward the stream. Figure 29 illustrates one of these effects. If the proper pole is turned toward the electronic stream and the magnet swung around the tube, the beam of electrons will move with it. This effect can be observed by watching the spot of light at the end of the tube. No matter how fast the magnet moves, the spot will follow. If it is moved sufficiently fast, the effect of *persistence of vision* will be evident, and the spot will be seen as a continuous line.

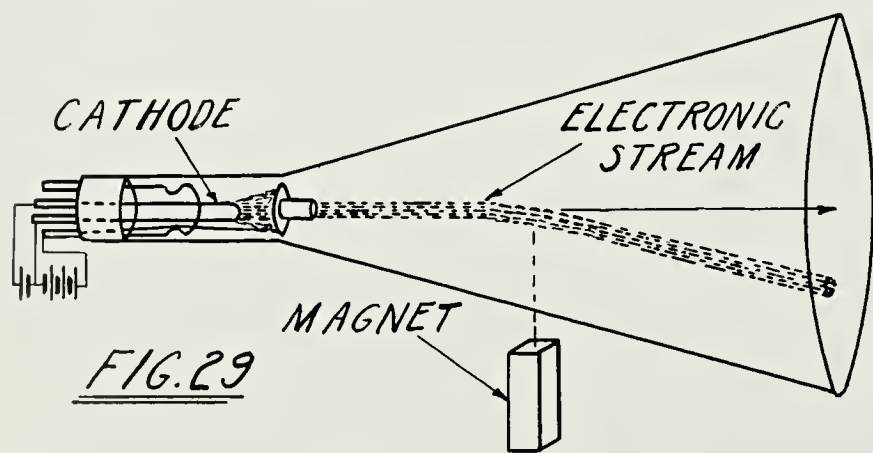
Involved in the attraction of the magnet for the electronic stream is also the *strength* of the magnet. Imagine that this is not constant, that it builds up from no magnetism to a maximum, and then gradually drops off again. What will happen? The electronic ray will gradually be drawn over toward the magnet and then just as gradually drop back to its original position. The strength of the original magnetism and the rapidity of its building up will determine just how fast this will occur.



If the magnet is of soft iron and has wound about it a number of turns of wire, it is possible to change its polarity by reversing the direction of current flowing through the wire, and the electronic stream may be drawn toward the magnet or pushed away from it at will. Usually such a magnet is of horseshoe shape, with the windings around its midpoint. However, at times these are in two sections, one on each of the open ends, as shown in Figure 35B.

If an alternating current of sine wave form, such as is shown in Figure 35A, is passed through the windings of such a magnet, the electronic stream, which is ordinarily focused on the center of the end of the tube, can be forced to move first toward one end of the magnet during the building up of the positive half cycle, and then back toward the center of the tube on the same line during its falling off. At this point the negative half cycle will begin its effect, and the stream will continue to move on past the center to a maximum position in the opposite direction, and then gradually return to the center.

Ordinarily, the spot would move from the center of the screen to one edge of the frame, then the line would



the methods is electrical or static, and is accomplished by means of plates located inside the tube at the sides of the electronic stream. An electrostatic charge is built up across these to attract the beam (much as is done by the anodes) and then suddenly removed to permit the ray to fall back to its original position. Both of these methods are used in present-day tubes, sometimes separately and often in combination.

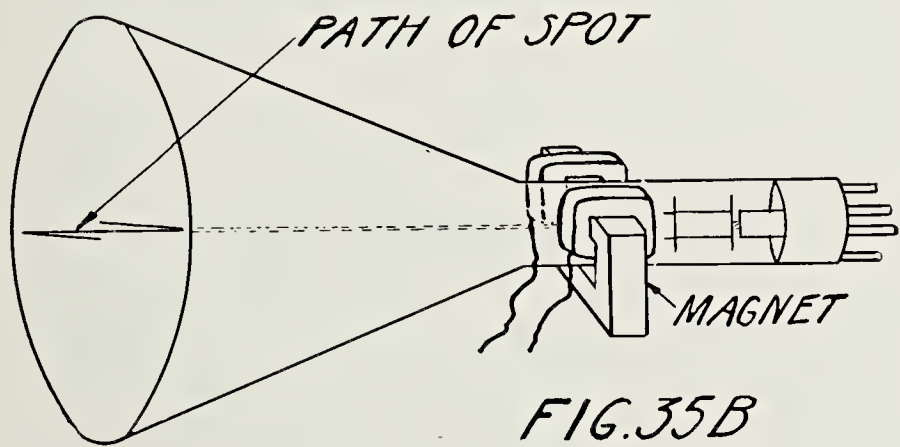
If an ordinary bar magnet is brought near the side of the glass tube the beam will bend toward it or from it. Which it does will depend on whether the north or south

move from that position all the way to the other side, and then be returned to the center. In Figure 35B the various lines have been separated so that none of them overlap each other. The effect of the movement can here be observed. In fact, if during the performance just described, the end of the tube is moved rapidly up and down before the eyes, this is exactly what will be observed, although during its stationary position nothing will be seen but a single straight line across the face of the tube.

The magnetic properties of the cathode-ray therefore can be used in television to cause the spot to give the appearance of lines by the rapidity of its movement, and since its brilliancy is constantly changing under the influence of incoming signals, the lines will appear to be made up of relatively light or dark spots on the screen just as was done with the receiving units of the Nipkow disc.

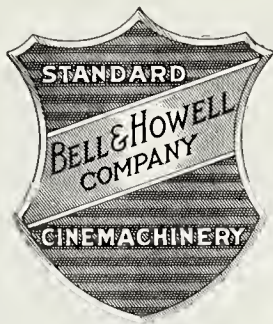
However, the magnetic method of deflection has its disadvantages. One of these is that more power is necessary to move the ray than is necessary with other means. The cost of the magnetic devices is also generally greater than that of others.

When the rapid speed at which the lines must be drawn across the face of the tube is considered, the high frequency involved discloses other difficulties. For a television picture of 240 lines at 24 pictures per second, this frequency is 5,760 per second. Since the magnets are current-operated devices, this involves the application of rapid changes of current to the coils so that the spot may be dragged back and forth across the screen at this high rate. The result is that there is generated in the coils a very heavy back voltage. This may cause a breakdown of the insulation of the windings and, if very high, may even crack the glass of the cathode-ray tube.



Magnetic deflection is, therefore, not as often used as other methods of scanning. It has its place, however, in the "picture" scanning direction. Each picture is made up of many lines as was shown in the study of the Nipkow disc. In one in which these are drawn from left to right, each succeeding line is drawn just below the preceding one. At the end of the group of lines which compose the first picture, it is necessary to return the spot to the upper left hand corner of the frame to start the second one. The magnetic method of deflection is very satisfactory for this purpose, since the frequencies involved are quite low, usually about 24 per second.

The manner of furnishing the power for this deflection is very similar to that used for the electrical or static method which is in most popular use for the higher frequency of the line scanning.



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"ZERO HOUR!"

By RED FELBINGER

TALES of heroism are run almost daily in the news dispatches that click over the wires.

With these yarns always goes mention of a "zero hour," that interim of time in crucial moments, used to build up human emotions into the makings of grand and glorious gestures, for cause, country or even ordinary routine matters.

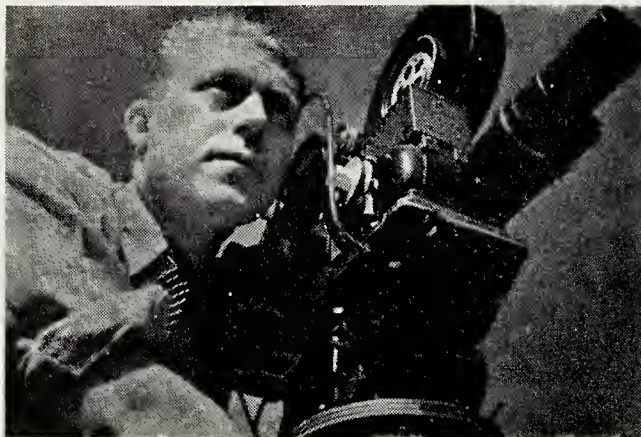
Perhaps no calling or profession is so replete with "zero hours" as the newsreel game. There is always, on all big stories, covered by the newsreel fraternity, a leading moment, that the boys call a "lucky break" in their own vernacular but a moment that could be termed "zero hour" to many a spectator on the sidelines.

Take the Kentucky Derby for instance. On this particular event, which is still considered the cream of sporting events of the year, the newsreel boys arrive early to pick their shooting positions. Hours are spent focusing lenses and trying fast pans. An entire day's efforts culminates with the horses going to post. While the horses are jockeyed into position at the starting line, newsreelers stand tense, with fingers glued to starting buttons on the cameras. Cameras must be running before the horses break. The familiar cry of "they're off!" is not the warning gun for the newsreel boys. They have to get every second of the race from the moment the horses break until the winner crosses the finish line. No alibis are accepted for late camera starts, jams or out of focus scenes on this story.

Therefore, on the Derby assignment, to realize your camera started on time and ran smoothly throughout the race is a great let-down. A long day, that is tense and nerve racking from the time you set up the old outfit right after the crack of dawn until you realize the goddess of chance has again smiled down on you, and you have had enough luck to come through once again on a derby assignment. Another one of the year's "zero hours" in the game has been realized.

Down at Indianapolis on the 500 mile auto grind, a motley group of sun scorched lensers hog the north turn. They station themselves there before the first lap of the race and remain until the last car has made its final lap. The boys stand glued to their outfits, with fingers on starting buttons, or hanging on to the crank. If and when a spill occurs, cameras are turning. The boys that get a crack-up call it luck once again. But to know that you have made a spectacular crack-up brings the restful lull to strained nerves which have been building up and up, lap by lap, as the race progresses. And again another zero hour has passed for the tripod jugglers up there at the north turn at the Indianapolis speedway.

Take a labor or social demonstration. There you'll find the newsreelers riding atop their trucks, perhaps making a shot here and there as things progress. Maybe, all seems serene but not to the lad riding atop the newsreel wagon. His mind is ever alert to the scene transpiring before his aimed lens. He is versed enough in mob psychology to know any type of anti-demonstration is hot and can suddenly flare into a sudden quirk of violence. He also knows that is exactly why he is there covering the event. Again



alibis don't go. The camera must be running when action breaks. The lenser is going through a "zero hour" all his own, calm as he may seem, riding atop his truck as activities move along.

You've probably watched the air races. Pilots staging mad speed dashes in souped up planes, or perhaps doing daredevil flying tricks with the planes they are handling. Then suddenly crack-up! Spectators rise to their feet . . . women

scream . . . a sickening hysteria goes through the crowd . . . ambulances shriek as they cross the field. . . . Down on the field newsreelers grind away calmly. . . . They are recording the accident on film. Are these boys just lucky? How do they get all this stuff? Because they know it can and does happen. They are prepared. They are on their guard. Following a plane in the finder of your lens, all day long is no easy matter. It's nerve racking, but must be done to get results. Covering an air race is no easy matter. It also calls for sticking close to your camera from the opening event to the final act on the program. Editors don't wire or phone to ask how did the crack-up look to you on the field, they want to know how you shipped it and when it is due at New York.

Almost any sporting event will turn up some unexpected action. It may be a home run by the batting hero of the series. Perhaps there'll be a spectacular spill in an outboard race. Maybe the star runner in the mile event will trip and spill. Or one of those triple passes and a seventy yard dash for a touchdown. And while we're on the subject of touchdowns. There's the famous Notre Dame-Ohio State football game that wound up in the all-time classic as newsreel coverage of football goes. The game was progressing as any game of football progresses, as far as the newsreelers were concerned. Ohio State was leading. The game was almost over. As far as the spectators were concerned Ohio had it in the bag. People were leaving the stands. But the newsreel lads, to a man, remained atop the press box roof. They weren't folding up the equipment, even if there were just a few more minutes to play. And again the unexpected happened. The boys behind the cameras recorded more football history on a few hundred feet of film, in the few last minutes of that game, than have been recorded on miles of celluloid, before or after, that celebrated sporting event.

And so it goes on and on. Whenever a newsreeler gets an unusual shot he calls it luck. But there is just a bit more than luck to the results the boys have turned in to the editorial office. The newsreeler has to be ever alert, when on an assignment. He knows its the unusual that makes a picture. To be on the job 100 per cent is plenty nerve racking. Every assignment has its "zero hour" and each zero hour is a separate, individual, test of the stamina of the newsreel man. He has his camera aimed and his finger is on the trigger. When the zero hour arrives, he goes "over the top" with only one thing in mind. To come through and deliver the goods.

End.

Motion Picture Laboratory Practice

(Continued from Page Seven)

acteristics of this material are shown in Figure 23. The latitude within a gamma range extending from 0.4 to 0.8 is adequate for existing variable-density recording and re-



VARIABLE-WIDTH RECORD VARIABLE-DENSITY RECORD

FIG. 22—Types of sound records.

producing equipment, while the resolving power within the density range employed is sufficient for present requirements.

The requirements for variable-width recording are different in some respects from those of the variable-density methods. In the variable-area record the exposed area should develop to a high density while the unexposed areas remain clear, and the boundary line between two areas should be as sharp as possible. These requirements necessitate the use of a fine-grain material with a high resolving power, and the ability to produce an image with a high contrast and free from fog. Sensitometrically such a material is represented by a *D-log E* curve having a short toe, a steep straightline portion, and a high maximum density.

The usual method of expressing speed in terms of inertia is without significance in the case of a material used in this manner, and the effective speed is determined by the exposure required to produce the required density in the exposed area with the degree of development employed.

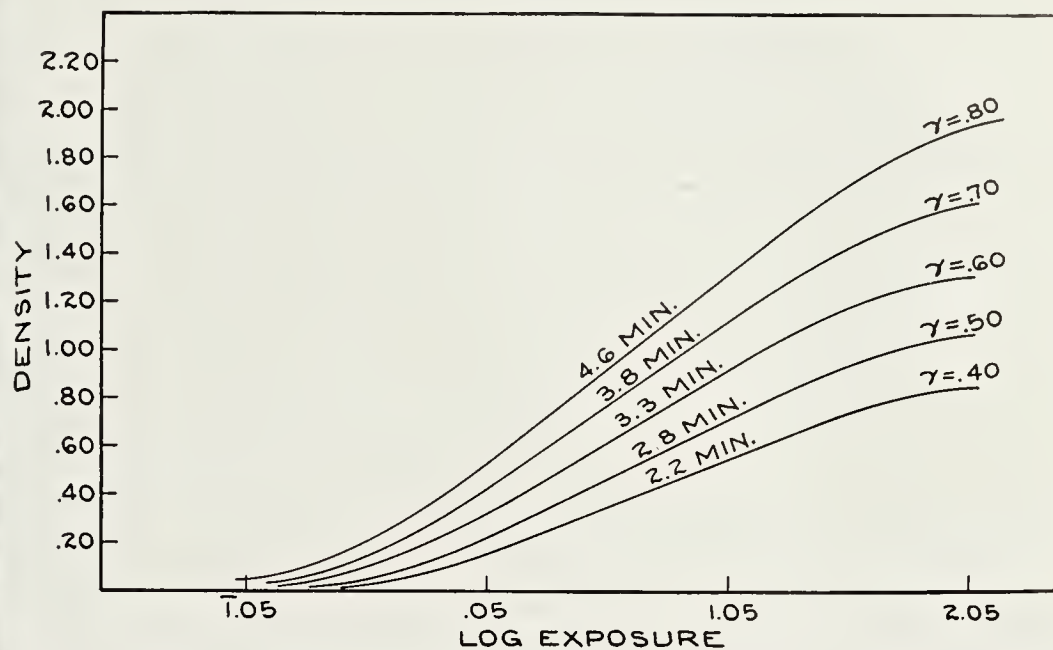
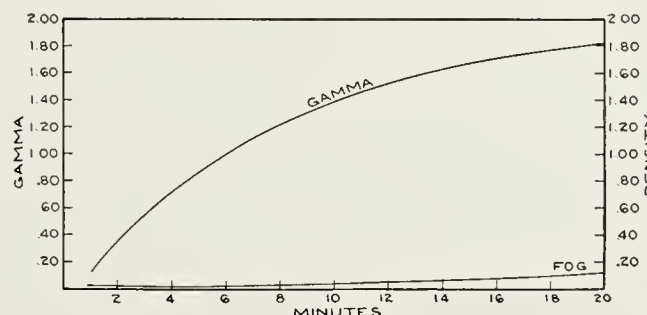


FIG. 23—Above: Characteristic or *D-log E* curve of Eastman Sound Recording Motion Picture Film (No. 1359), developed in negative formula D-76 for variable-density recording.



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

Eastman Sound Recording Film (No. 1359) fulfills these requirements when developed in a positive developer of the type represented by formula D-16. (See Figure 24.) Gammas ranging from 2.0 to 2.2 (as specified for variable-width recording) are readily obtained with a comparatively short time of development, and as the maximum gamma is considerably in excess of the values used in practice there is no difficulty in obtaining the required values without in any way forcing development. The maximum density obtainable with this material is considerably in excess of that required (1.35 to 1.45), the fog value is low, and the resolving power sufficient for all practical purposes.



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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

THESE are often times when the cameraman could use a long focus lens of 6 inch focus or longer when making extreme closeups of small objects. Probably most cinematographers are familiar with the usual form of "slip mount" commonly used with the 6 inch lenses which are usually a part of the equipment of well outfitted camera units.

However, there are times when the usual mount will not permit the lens to be focussed closely enough on a small object to give the desired effect. It then becomes necessary to resort to the use of extension tubes, to allow the lens to be moved closer to the object. These tubes are usually threaded extensions which can be screwed onto the mount to permit the outer tube of the mount to support the lens at a greater distance out from the turret.

When using extension tubes with the Bell & Howell it becomes a problem some times to make sure that the lens does not shift when the turret is swung over and the camera "racked over" from set-up position to taking position. Naturally, any shifting of the lens during this operation will cause trouble, especially if high magnification is being used. Perhaps the best way to insure against this is to use the sunshade as a support for the outer end of the mount, and to know that the focus of the lens can be locked snugly so that it is not apt to change when the turret is turned and the camera shifted.

Large lenses of big aperture are necessarily rather heavy. This weight is out at the end of the mount, and therefore the strain put on the adaptor at the turret is apt to be severe. We have made a number of duralumin and also steel adaptors for the turret, in order better to stand the strain of the weight of heavy lenses.

Some photographers are bothered by the matter of exposure when using lenses set out a long distance by extension tubes. They realize that by moving the lens a lot farther out than its usual position they have cut down its effective aperture, but they do not know how much. Well, here is a simple stunt that has been used for years by commercial photographers who do a lot of copying:

Every photographer knows that the speed of lenses is stated as being of "relative aperture." This means simply that a lens which has an aperture of $f/8$, for example, has an effective opening which is $1/8$ of its focal length when focussed at infinity. Therefore, a lens working at $f/4.5$ has an opening that will divide into its focal length $4\frac{1}{2}$ times. So here's the way this is used to determine the actual working aperture of any lens when focussed extremely close on an object:

For example, here is the way I use an $8\frac{1}{2}$ " $f/4.5$ lens I have. One day I unscrewed the front element of the lens, and with a pair of inside calipers which were set accurately at 1 inch, I adjusted the diaphragm until the calipers told me that the opening was just one inch. I then put a mark on the stop adjusting ring at this point, and replaced the front element. When I focus close on an object, I naturally focus wide open. Then I stop down to the mark I made. I know that the lens is now set with an aperture of one inch. Then, with a small scale, I measure the distance from the focal plane to the diaphragm of the lens (considered the nodal point). Suppose this distance is 14 inches. Since relative aperture is the opening divided into the focal length, the effective aperture of the lens as

focused is therefore $f/14$, and I therefore make my exposure accordingly.

The same method can be used to good advantage when making extreme close-ups with cine cameras and extension tubes, and, if your lens is one of large aperture, I suggest that you use a one inch opening, since it makes it easy to figure the relative opening direct, whereas a smaller opening might work out to too small a value for full sound speed in the camera. Another way of putting it is this: That $8\frac{1}{2}$ " lens in the same set-up as described, would be working at $f/28$ if I had made a $\frac{1}{2}$ inch opening of the diaphragm instead of the 1 inch opening I use.

One other point that may be worth remembering: You will find that, in copying, you will get snappier negatives if you do not stop down too far. Instead of stopping down to $f/32$ or $f/64$ when copying, try working around $f/16$ to $f/22$, and see the difference.

— 666 —

In this column last month I listed a number of items which should be included in the camera kit. I forgot one of the most important of all—a generous, well stuffed shoulder pad attached to the tripod for carrying the camera with some degree of comfort. An assistant can do better work if his shoulders aren't being made black and blue and sore by the sharp corners on a heavy sound camera tripod. This item, although a simple one, is especially important during warm weather when the fellows are wearing thin clothing. So our slogan is: Make your Assistant happy with a good shoulder pad!

— 666 —

Have you ever been making a set-up with a B & H and had to tilt down at a steep angle, with the tripod on a cement factory floor, only to have the points shift as you racked over to make the shot? It has happened to me, and even with the assistant and some one else hanging on to the legs during this operation, the results are not always good. For this reason, we put oil on the slide ways of the tripod, keep the legs tight, and use a triangle for the tripod points. Even with these precautions we sometimes have trouble.

One of these days I'm going to get mad and put rollers under the camera so that it will shift easily. Then I'm going to rig up some kind of a shifting lever, and I'm going to see if I can make one that will handle the camera easily, even when it is tilted down at an extreme angle. This business of having to hoist the weight of the camera off the slides under such a condition is not only a nuisance, but certainly looks awkward in the presence of the customer. There are times when one cannot use a Mitchell because of the prevalence of abrasive dust which doesn't bother a B & H but which certainly would play hob with a Mitchell. I have in mind a picture on which I worked recently, made for a prominent manufacturer of grinding wheels, abrasives, and the like, where a B & H was used in preference to a Mitchell. Well, gemmun, we sure had our hands full, because many of the shots were of the kind discussed above.

Still another thing I can think of that will save time and trouble, is to make a mount for the finder so that this important instrument will fasten to the *tripod head* instead of to the camera. Then it can be set once and for all, and it will save racking over the camera in order to set the finder.

— 666 —

With miniature cameras becoming more and more common, we find many cinematographers using them as adjuncts to their study of films, filters, and related subjects. Harry Birch is perhaps the dean of cameramen in 666 who use minnies this way. I know several others, and recently

Cinemabiography

CHARLES O'CONNOR, Director of Commercial Films for Jam Handy Pictures Service Inc., of Detroit, Michigan, has been associated with that firm for the past thirteen years. He became identified with the motion picture industry in 1906 when he went to work for Selig Polyscope Company as general utility man, in 1907 he worked as an actor at the Essanay Film Company for a period of four years, appearing in such pictures as "Slow But Sure," "Little Mad Cap," "Peck's Bad Boy" also acted with Ben Turpin in several comedies. 1911 saw him with American Film Company as laboratory man, cameraman and make-up-man and there he stayed until 1924 when he joined the Jam Handy organization. O'Connor stands 5 feet 5 inches high, sans hair, has blue eyes, is married and the father of two lovely daughters.



Charles O'Connor

I have been bitten by the bug, and have procured an Argus. Now I'm getting ready to make up a set of filters for this baby. There will be Aero 1 and 2, X-1 and X-2, G, 23-A, Minus Blue, and one or two others. With these in a convenient pocket kit, I'll be all set for running some interesting tests of filters and films.

We in the craft are particularly fortunate in our use of miniature cameras, because we can easily get all the film we need from short ends. However, if negatives are to be blown up to very large prints, it is a good idea to keep away from the very rapid emulsions such as Super-X and Dupont Superior, although the latter seems to have a slight edge on the matter of grain. The good old background stock still seems to take the cake when it comes to fine grain, but Agfa Fine Grain Superpan runs it a mighty close race, and of course is much faster. The basic exposure in summer sun with this film is 1/50 second at f/16, which gives the user a lot of leeway in the use of filters.

— 666 —

This isn't technical, for a change. Last Sunday, the *hausfrau* and myself discovered a paradise in the way of parks. This one is Lowell Park, in Dixon, Illinois. The city fathers have there 140 acres of woodland and road, with picnic facilities, shelters, abundant fireplaces, playground for the kids, swimming, and even speedboat rides. The whole place is kept in the best manner, with the original unspoiled woods and a magnificent location on the edge of the Rock River. For a place to slip away from the crowds and the hurly-burly of Chicago, you won't find a pleasanter spot in many miles.

I'm going to get down there again next fall and get some color pictures when the leaves change. And then next winter there will be ample chances for snow pictures. It's like our forest preserves, but more primeval, and not overrun by campers and picnic crowds. Adios!

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Scene from Pioneer Pictures' romantic comedy, "Dancing Pirate," an RKO release. Designed in color by Robert Edmund Jones. Directed by Lloyd Corrigan. Photographed by William Skall.



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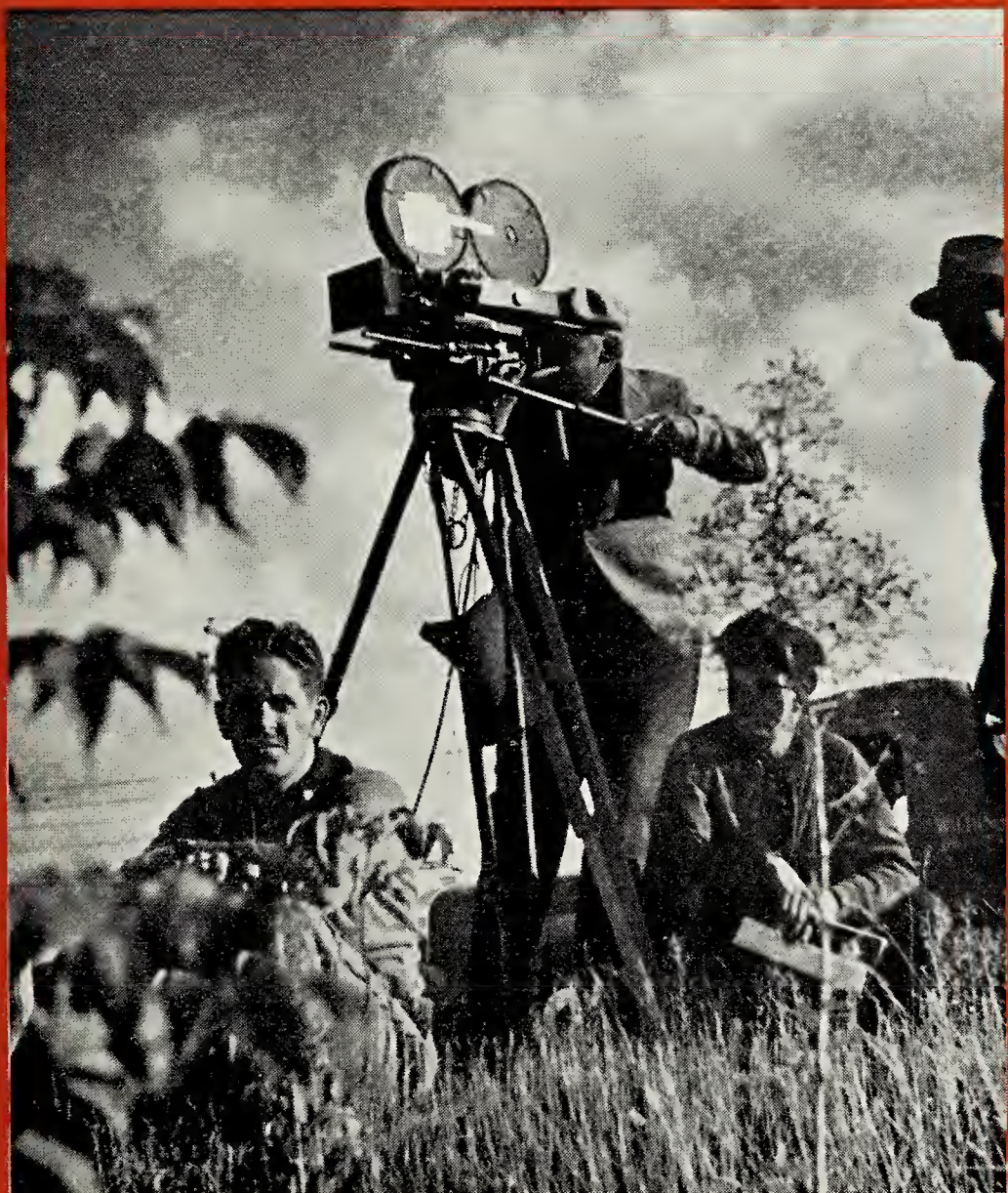
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By W. H. S.

New contracts have been successfully negotiated between Local 666 and producers of industrial motion pictures, agreement is for one year from September 1st, 1937, to August 31st, 1938.

An increase of 10% in wages was secured for all cameramen permanently employed and a 25% increase was obtained for all cameramen employed on a temporary basis.

The agreement provides for a 44 hour week, time and one-half overtime, per hour of salary rate or equal amount in time off, with pay. Double time for hours worked between the hours of midnight and 6 A. M., and double time for holidays.

The agreement further provides that 88 hours may be accumulated for a seasonal vacation within the year period at a time agreeable to the employer.

Ten thousand dollars insurance is provided for cameramen when used on hazardous assignments.

The following Producers of Industrial films are parties to the agreement.

Atlas Educational Film Co.
 Action Film Co.
 Burton Holmes Films, Inc.
 Chicago Film Laboratories, Inc.
 Filmack Trailers, Inc.
 General Film Co.
 Jam Handy Picture Service, Inc.
 National Screen Service, Inc.
 Ray Bell Pictures, Inc.
 Spoor Ahbe Film Co.
 Wilding Picture Productions, Inc.

The fifty-fifth annual convention of the Illinois State Federation of Labor opened at LaSalle, Illinois, Monday morning, September 20th, 1937, immediately following an introductory program presided over by Mr. Charles Bennett, president of the LaSalle Trades and Labor Council. The sessions of the convention were held in the LaSalle auditorium.

The committee on credentials recommended the seating of nearly 780 delegates representing over 300 local unions, councils, conferences and central bodies.

President R. G. Soderstrom of the Illinois State Federation of Labor responded to various addresses of welcome and presided throughout the convention.

TEMPERANCE

By J. Roy Hess

Sometimes I get to thinking,
 In the queerest sort of way,
 About the simple things of life
 That we enjoy each day;
 Among the many wonders
 That happen to my view,
 Is the penny box of matches,
 And results that may accrue.
 They may be used with caution,
 Without a bit of harm,
 To kindle up a bit of flame
 With which to keep one warm,
 Or maybe careless waste is shown,
 With consequences dire,
 And then we have disaster,
 In a devastating fire.
 And the little box of matches
 Brings to mind another thought,
 That what a lot of comfort,
 With a little, can be wrought,
 Or what a lot of misery,
 Depending in the way,
 We warm, or burn existence
 In our living, day by day.

Harry Birch and Jonny Niklasch just returned from an eight week chore for Wilding Picture Productions.

Shorty Richardson and Loren Tutell traveling the country for Wilding.

Bob Tavernier and Sam Savitt hitting the trail for Jam Handy Picture Service.

Charley David is back on the "Search for talent" M.G.M. traveling studio truck.

Norm Ally flew to China the other day on the American Clipper to cover the undeclared war for Universal.

Sam Savitt is covering for Ally in Los Angeles.

Doc Gantz, engaged by Audio productions, is working with Don Malcames and Jack Aichelle.

Viola Braun is vacationing up in the mountains of Tennessee.

Does anyone know the whereabouts of Howard Winner, who has been A.W.O.L. for more than four months?

Charles Geis and Rufus Pasquale are cranking for Handy.

Irving Mack's FILMACK Softball team didn't win the pennant in the Film Row League. In fact they didn't win a single game. But they did win the admiration and respect of every member of the opposing teams. So what?

So, they were awarded a Bronze Trophy for Sportsmanship, which is something to be rightfully proud of! And they are!

FORTY YEARS—AND FOUR

As Told to
HARRY BIRCH

BACK in 1893, the year of the World's Columbian Exposition, in a dimly lighted room in Chicago was born the organization which today bears the name of Burton Holmes Films, Inc. At one end of the room stood a lad of 23 facing an audience that had come to hear him describe his recent trip to the Orient. On the screen pictures were being projected by means of a stereopticon operated by another lad of the same age. The man in front of the machine was Burton Holmes. The man in back of the machine was Oscar B. Depue.

Burton Holmes had just completed a trip with John L. Stoddard, the lecturer, to the Orient where he had made many kodak shots. Having a knack of handling the English language in a rather interesting style, he had been asked by his mother's club to give a talk describing his trip. This he had done a few days before and had illustrated his talk with lantern slides made from his kodak shots. Having received quite a hand at the end of his first platform venture, he decided to try it out on the general public with two lectures titled "Japan, the Cities" and "Japan, the Country."



Burton Holmes

A few years before a boy from Iowa had left the farm in favor of the big city and had come to Chicago where he could more fully develop the mechanical side of his nature. He was employed at the McIntosh Battery and Optical Company, located in those days down on Wabash Avenue where Carson Pirie Scott now stands. Starting as helper in repairing lantern slide projectors, batteries, and static machines, he had become quite an expert on stereopticons. Being one of the leading stereopticon operators or projectionists, he was chosen by Burton Holmes to run his first show. Face to face, so to speak, the two of them put on their first public performance in the dimly lighted room in the Auditorium Building which was then known as Recital Hall. No slides appeared on the screen upside down and the talk was delivered successfully, if, however, in a boyish style. The audience liked it. In fact, they told their friends and the show was repeated a number of times with ever increasing success.

After this humble but enthusiastic reception, these two young men decided to take a whirl at this type of entertainment. In 1895, having equipped themselves with specially made bicycles and having carefully fitted themselves out with minimum clothing and equipment for a photographic expedition, they sailed from New York with Europe as their destination. They spent the summer bicycling 3,000 miles on the Continent.

Their appetite for pictures of new and interesting places spurred on their husky legs to pedal them through Southern France, mountainous Corsica, Italy, Switzerland, and England. While they still had enough funds to get home and to finish their pictures and hire their first hall,

they returned to America on the American Line S. S. St. Louis.

The fall of 1895 was rather hectic and they worked feverishly on their new series of travel lectures. Burton Holmes wrote his travel talks while Oscar Depue made ready the projection equipment, developed the pictures and made lantern slides.

Late in the fall, they rented the Central Music Hall, located where Marshall Field's now stands, and again introduced their new venture to the public. It clicked. Lectures, illustrated lectures, were given in many other cities throughout the country and summer after summer the pair traveled abroad.

In 1897 Mr. Depue for the first time saw motion pictures and when in France that year purchased a Gaumont camera. Very little motion picture equipment was on the market and the machine he purchased utilized 60 mm. film. Taking themselves to Italy, they made their first motion pictures of St. Peters in Rome. It was truly an action shot with the picturesque basilica in the background, the action being furnished by a herd of goats walking by, a flock of pigeons alighting in the foreground and fountains playing. Following this, Venice and its picturesque canals supplied action of a different type for the lens of the new motion picture camera. During the lectures that followed, the movies were run as an added attraction at the end of the regular lantern slide presentation, but before they were added, Mr. Depue had experienced many, many headaches with his new toy.

Upon his return to America he had found that he could not obtain a projector for his 60 mm. film, nor could he obtain a printing machine with which to make his prints from his wide negatives, nor for that matter could he obtain positive film perforated for 60 mm. Another hectic fall followed. A perforator and a continuous printer had to be built. The Eastman Kodak Company, not much older in business than the association of Holmes and Depue, was kind enough to furnish kodak film 60 mm. wide in 50 foot rolls and this after having gone through Mr. Depue's hand made perforator supplied the stock upon which the positives were printed. The valuable movie negatives after printing were then packed away in cans and many of them are in excellent condition today, which fact is due, probably to very careful fixing and washing. But now came the problem of projection and the trusty old camera was made into something now vastly more important. A lamp house was added. A few changes were made, and another lens was attached. The camera had become a projector and that season the first Depue Chronometograph films were exhibited to the rapidly growing audiences. In rapid succession new equipment was built and added so that by the following year the two men had complete facilities for photographing, developing, printing, and projecting "moving pictures."

In 1902 they adopted the 35 mm. size film and equipment which had by then become the standard for the industry.

Strange places were visited and each year eager, enthusiastic audiences awaited the return of the wandering pair to see what glass and celluloid had recorded for them.

As the audiences increased, so did the extent of their travels and the year 1908 found them in the heart of Java. They had spent many weeks photographing the unusual

sights of this then little-known island and were on their way to its principal city, Batavia, when Mr. Holmes broke the shutter of his Speedo still camera. He looked up a gunsmith and after two days of anxious waiting, this old craftsman fashioned a beautiful three bladed shutter for the camera. Things looked bright again so they set off determined to make up for lost time. On the second day the new shutter broke down and they were again in the same predicament. Mr. Depue, however, having gone through the growing pains of movie development had become quite a hand at fashioning new equipment and rebuilding old equipment and he decided to repair the shutter himself. With the aid of a little tin and a couple of strong common pins, he set to work under the shade of a banyan tree. His ever ready tool kit produced cutting shears, screw driver, pliers, a little hand drill, and a hammer. With the aid of these tools, the pins and tin, a new shutter was fashioned in a few hours' time and served Mr. Holmes for two years after.

In 1904 the team of travelers started to widen their scope and decided to put on a series of lectures in London. Lecturing in England and lecturing in America, of course, were two totally different propositions. It was found that the Englishmen regarded a lecture as something in the nature of a talk by a schoolmaster and hated it accordingly. Mr. Holmes, consequently, had to find a new word with which to advertise the enterprise. He called upon his manager, Mr. Louis Francis Brown, who coined the word, "Travelogue." One of the rare occasions when Mr.



Holmes was addressed by a member of the audience occurred during this series of lectures in London. Mr. Holmes had waited a few moments before appearing, wishing to give the late comers a chance to get into their seats before the start of the program. As soon as he stepped on the platform to make his introductory remarks, an

old gentleman in the front row leaned forward and shook a reproving finger at him. "Young man," he said sternly, "you are late."

In 1910 another little known country was visited and this time the trip took on the nature of an expedition for they had decided to visit the grand Igaussu Falls in the heart of South America, which until that time had not been successfully photographed. Having had some experience in the tropics they determined to go well equipped. After many months of hard work, Mr. Depue completed the building of a portable developing machine which consisted of a large edition of the kodak tank; a 200 foot celluloid band with corrugated rubber edges allowed the wound from one compartment to the other and the film

was drawn from the camera magazine. Developing, fixing, and washing all occurred in this tank and the film was then wound on a portable 400 foot 12 pound spindle drum, all in daylight.

film to rest between these raised edges. The tape was



In those days no boats ran directly from the United States to South America, so a detour by way of England had to be made to catch a boat to take them to Rio de Janeiro and Buenos Aires. In South America it took eleven days' travel by rail, by river steamer, and wagon trail through tropic jungle to reach the Igaussu Falls. For one week Mr. Holmes and Mr. Depue were the only visitors at the falls with two guides as their assistants. When the falls had been photographed from many intriguing angles, there came the job of developing the precious film. On the banks of the Igaussu River, the developing machine was set up. The developers were mixed and the rushing river supplied the cool, clear water so essential. After many hours the films were finally finished, dried, and back in their cans where they were safely sealed for the trip back home through the tropics, the first successful pictures ever made of these falls which dwarf Niagara in both splendor and magnitude.

By 1916 hundreds of thousands of people had come to know that the names of "Holmes" and "Depue" stood for fine pictures and fine entertainment. Taking note of this, the Paramount Company entered into a contract with the two men and their corporation, which had been formed some years before, to produce a weekly "Paramount—Burton Holmes Travelogue." This meant even greater expansion and greater activity than ever. It was decided that a number of cameramen simultaneously trotting the globe would be necessary to produce enough travel pictures to release a one reel short subject every week. The traveling pair divided their efforts. Mr. Holmes, of course, had to keep traveling to produce and present his platform travel talks and Mr. Depue remained in Chicago to start the production plant necessary for the printing and releasing of the theatrical "shorts." After having laboriously fitted up a building on N. Paulina Street in Chicago as a motion picture laboratory, Mr. Depue was visited one day by the fire inspectors, and served with an ultimatum that the rather flimsy structure which he was occupying could no longer be used as a film plant. More expansion—hours with architects and builders and finally the blue prints for a modern motion picture laboratory, correctly designed in every respect. The building was erected on North Ashland Avenue. Little did the fire inspectors know the favor they were doing the organization, for the Paramount—Burton Holmes travel pictures had in the meantime "caught on."

(Continued on Page Eight)

Screenings, Thither and Yon

By ALMA MAE BUTLER

ONLY the American who succumbs to the almost universal desire to go gallivanting off to Europe knows the meaning of Home Sweet Home. And only the American who has been stunned by that barrage of foreign bluntness and petty, open thievery, knows its delights and the hunger for more. Queer people, these Americans, all too smothered with their own success to recognize the goal they seek. And it's just that plagued ego of ours that marks us instantly as a nice, little nest of lollipops for all the sweet-toothed marauders crouching in their lairs beyond.

It takes Paris to let the wind out of one's sails. The hussy doesn't give a whit whether you're the Humdinger of Hoboken or a palooka from Paducah; it's all good trimming, my dears. Scientifically, conscientiously, her law is Snatch, and the American, principally, is to blame.

The moment the ship docks you sense her undercurrent of relief and collusion with that horde of human beasts of burden who load you with great confusion into something like the Toonerville Trolley. Herculean strength and tenacity of purpose is the only key to procuring a seat, even though you do have reservation. Blithe, American protestations avail you nothing in this quaint, little land of "No Savvy." Off you whisk, with the puffing of soot and shrills of a toy whistle; off to your Waterloo, the Mecca of the world—Paris! This is your final chance to throw out your chest and swear by the tautness of your purse-strings.

Paris hotel night life isn't exactly the thing you have pictured—soft, mellow lights; dulcet music; ubiquitous servitors alert with clicking heels, and visions of feminine pulchritude wafting in rare perfume. Paris is a nine o'clock town. What lights are burning are anaemic, little sparks that blink through windows with all the might of their 15 watts. There is an absence of Fiddlers Three. The concierge, asleep with his keys, is too old to click any heels, and when you jostle him in the midriff to learn a bit of your bearings, it explodes such a blast of impenetrable bunk that you're glad to hie off to nowhere, just leaving that infectious shrug.

The spirit of Louis XIV pervades throughout the



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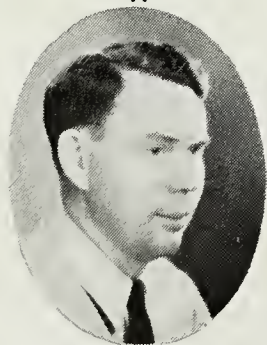
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place, from the legs on the sofa downstairs to the plumbing ten doors to the left. My chamber was as lewd as a leaf from the pages of Balzac, and after three nights of inhaling the putrescence of Du Barry, and wondering who hid the soap, I declared there was nothing like a Beautyrest as far away as Bay City. The perfume that thrilled so much at first soon became a sickening pall and my most plebian nostrils craved for a whiff of Pittsburgh, Chicago, or a plain American skunk.

Water is that stuff they shoot up their fountains and pour into the hotel inkwells. It is certainly not for personal use, and while it often occurred to me to tell them



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at one side of the thing that is next to Godliness—I always weighed the guillotine's revenge. One never has water to drink, and three days of shrivelling from the effects of dehydration makes welcome even the poisons of the Seine. Then, if you drink it you get pimples; if you don't you get pipp—it's merely a matter of choice.

The greatest industry of Paris, that which has the unified effort of every man, woman and child, is "Hook the American Tourist." One of the first things the visitor learns is that the place is cursed with the "Gimmies." The taxis alone are impoverishing, with their never consistent rates—and because you're the sucker they know you are, you'll pay whatever they state.

And so, one walks! The Champs Elysees is the main promenade. From the Arc de Triomphe, which protects the tomb of the Unknown Soldier, to the Place de la Concorde at the end, chestnut trees form a long colonnade as far as the eye can see. Everywhere, little sidewalk cafes dot the course with color. At the side of Le Figaro a huge billboard informs the passersby of the meatiest news of the day. Always that endless procession, carrying on in that willy-nilly way; gazing into all the shop windows; chatting, with nothing to say.

It's the city of the unsightly feet. If it be true that Paris sets the mode, then we'll all be wearing house slippers next Spring. Good footwear is tremendously expensive, and a pair of trim, well-shod feet tripping down the avenue immediately draws widespread attention. And you can reasonably be certain they're not on anything from Paris. The poor, little gals just scuffle along on the relics of their closet floor. But they make up for it on their torsos.

The way to judge the woman of Paris is to begin at the belt and glance upward. While they are much too overdressed, from the American point of view, with feathers, furs, veils and beads, I'll challenge any American woman to rig up in like paraphernalia and get by with such equal eclat. And they realize the potentialities of black in such a delightful way. When it comes to an assortment of glorified types, all wearing the widow's weeds, you must hand it to Paris; as if they look forward to the woeful event as the achievement of cause and effect.

Not a word shall I say for its men. They all need a cleansing pill.

The Exposition at Paris is a hodge-podge of modern conceit with a background of old-world setting. Eiffel Tower, at its hubs, shoots up like a rocket of color that falls on the Seine below. Gay, little excursion boats and trains run up and down, pouring out a riot of gaiety. Everything blazes with light. Were it not for this marvelous lighting, the most beautiful fountains, the Seine, and the masterpieces of the sculptor's art, that loom up on every hand, Paris and its Exposition would be just another event, but these things are products of a master hand, to sustain the ravages of time, and their use seems quite fitting in this current cause to help out the faked castles about.

In all, Paris is the loveliest spot on earth. Nothing can compare with its miles of beautiful parks with fountains that shoot pearls to the sky. Much of the city's architecture boasts of Sixteenth Century origin. The Louvre alone is worthy of one's entire concentration.

Venus de Milo stands there on a pedestal, beneath a flood of light; Mona Lisa, the Rembrandts and Goyas give the tourist a lifetime of endless delight. I stood in the shadows of a chestnut tree, watching the moon over Les Invalides, while silvery clouds twirled about its dome. At peace with the world, like Napoleon, at peace with himself within. Notre Dame; Versailles, Malmaison; these are the things of Paris, not its thirst nor its lust for gold.

And rather than have it said that Paris is alone with its knaves, I'll say we Americans have no cause to bray. The day I stepped back on my native sod, a poorer but wiser soul, I hailed a taxi to make a train, and got skinned to a frazzle right here at home.



Scene from Pioneer Pictures' romantic comedy, "Dancing Pirate," an RKO release. Designed in color by Robert Edmund Jones. Directed by Lloyd Corrigan. Photographed by William Skall.



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Forty Years — And Four

(Continued from Page Five)

Demands for them were pouring in from all over the English speaking world and it would not have been many months before the original laboratory would have been outgrown. In a short time the new plant was functioning, and travel pictures were being shipped to the far corners of the globe—a one reeler every week was released for six years. During this time the commercial department was started in the laboratory for developing, titling, and printing of feature pictures and industrial productions.

Ever the pioneer, Mr. Depue, who was in charge of the Chicago operations, was quick to see the possibility of the new 16 mm. film when it was introduced in 1923. Previous to this Mr. Depue had invented, perfected, and started the manufacture of his automatic light control boards. This was a device for automatically controlling the intensity of printing light and was adaptable to almost any type of motion picture printer. It did away with the manual control of printing lights and enabled the laboratory to speed up its printers and increase output. With a machine shop already functioning, blue prints were drawn up for a 16 mm. optical reduction printer. As everyone knows, 16 mm. caught on in a big way, and before long the Burton Holmes laboratory was equipped with a battery of 16 mm. printers and necessary auxiliary equipment. Demands also from other laboratories were coming in and Mr. Depue commenced building 16 mm. printers for the industry, and since that time has supplied printers to all the large laboratories in the United States and to many abroad.

Pioneering in the 16 mm. field proved to be a happy decision for 16 mm. was destined to be the medium most widely used in commercial and industrial films. In 1930 the company determined to enter the industrial production field. This meant further expansion and additional equipment. It didn't take long to learn the headaches of bootleg recording equipment and thousands of dollars of one-year-old equipment, which was rapidly becoming obsolete, had to be discarded in favor of the RCA "High Fidelity" sound recording system. Arc lights had to be replaced with incandescent lighting equipment. New cameras had to be purchased, but in the meantime the production and sales staffs had been making headway. As the number of its customers increased, so did the company. As the industry developed, so did Burton Holmes Films, Inc. More new laboratory apparatus as well as production equipment was added. Developing machines were installed in 1935. Sensitometric control was adopted and the entire laboratory put on a control basis. Individual screen inspection of every motion picture print was inaugurated. Forty years—and more—of motion picture experience with constant improvements in equipment and technique and an ever increasing staff has resulted in the fine reputation which the organization enjoys.

Today, as the oldest American film company actively in the business, Burton Holmes Films, Inc., is serving an ever increasing list of customers through its laboratory division and its rapidly growing production department. An interesting growth from an humble beginning.

VI'S KRAX

NORMAN WILLIAMS ALLEY, former Secretary of this here Local and now a member of Local 659, hopped the China Clipper September 15th for Shanghai to cover the war or the Geisha Girls. As Sherman said, war is H——.

Well, we are all happy to welcome Conrad Luperti back again and he looks great. How about helping us get a job for "Lupe"? He says, "I'll do anything just to get started again."

They tell me that our quiet and meek Johnnie Niklasch has to carry a baseball bat around with him in Detroit to fight the girls off. "Why, Johnnie, don't fight them off because when you get as old as some cameramen around, the girls will throw baseball bats at you."

One of the well known Trailer Companies is going to have a great ball team next year; got a trophy this year for losing twenty games.

"Red Felbinger" is going to build his own private and personal stand next year for the "Gold Cup Races," and from all reports all the Newsreel Camera men are going to help him.

Not being as fortunate as some people that can take ocean voyages, summer in the North Woods, trips to East or West Coasts, Mexico, or what have you, I'm off Saturday the twenty-fifth for a Motor Trip to Smoky Mountains. Gee, I'm glad I waited until now. "Are you jealous people?"

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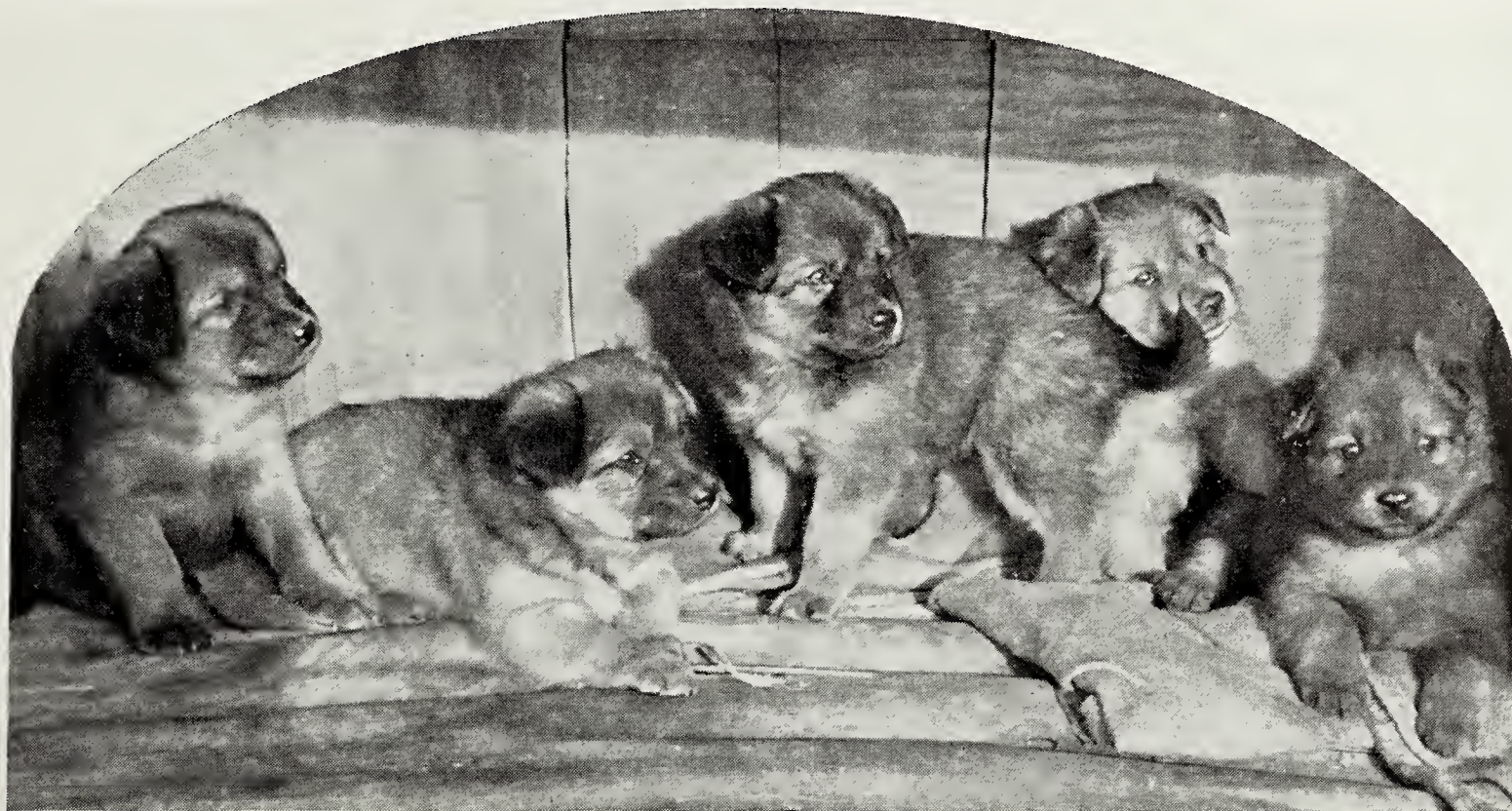


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THE ELEMENTS OF TELEVISION

By C. P. MEEK

Editor's Note: The articles on Television, by C. P. Meek, have now reached a point where the principles underlying television "cameras" are being discussed. The theories of their uses should be interesting to motion picture cameramen and all such are urged to become familiar with them.

Section XXXIV—Electrostatic Deflection of the Cathode-Ray

The second and more popular method of deflecting the beam in accordance with the plan, calls for the use of *electrostatic*, rather than *electromagnetic* fields. Any plate which is positively charged will draw the electronic stream toward it, just as the anodes attracted the electrons from the cathode and moved them toward the opposite end of the tube. If a positively charged plate is located between the final anode and the screen, and to one side of the normal straightforward path of the beam, the stream will be diverted in that direction. If the plate is located above the beam, the ray will be bent upward.

Advantage is taken of this phenomenon to furnish the deflection necessary for the formation of the lines. Four rectangular plates are inserted in the tube for this purpose, and these are grouped in two pairs, namely, P_1 and P_2 , and P_3 and P_4 of Figure 32. In a picture in which the lines are drawn from left to right and below each other, one of the pairs is used for the horizontal or "line" scanning, and the other for the vertical scanning, that is, for compelling each successive line to fall just below the preceding one.

If a high voltage battery is connected across the pair of plates P_1 and P_2 of Figure 32 or 36B, that is, with the positive terminal connected to one plate and the negative terminal to the other, that which is charged positively will attract the electronic stream toward it, and the beam will be diverted from its normal straightforward path. The spot formed when the ray bombards the fluorescent screen at the end of the tube will move in a line at right angles to the direction of the stream of elec-

trons, and toward the positively-charged plate. The potential applied to the plates will determine the amount of this movement. As it is gradually increased, the bending of the beam will become more and more pronounced in direct

proportion to the applied voltage, that is, one volt will bend it a certain amount, two volts twice as much, three volts three times as much and so on. The spot of light will be moved from place to place across the fluorescent screen.

Section XXXV — The Use of the Cathode-Ray Tube as a Voltmeter — The Sensitivity of the Tube

Now here is an interesting matter in connection with the voltages which cause the movement of the spot across the screen. If one volt of battery is applied across the pair of deflecting plates, the point of light on the fluorescent screen of a certain tube might move one millimeter, or about .04 inch. Two volts would cause it to move just twice as much, three volts three times as far and so on. The cathode-ray tube can, therefore, be used as a voltmeter, and a scale of volts can be marked on the face of the tube.

Under the influence of rapidly changing voltages, the beam will follow the most rapid vibrations, because it has no mass. As a voltmeter, the tube can indicate quickly changing conditions which are impossible for the customary types of meters. Ordinary electrical measuring instruments have the mass of the needle or pointer to contend with, and are in consequence limited to low frequencies, but here is a weightless pointer, the

electronic stream, which can follow any frequency which may be desired.

As a meter the cathode-ray equipment has other advan-

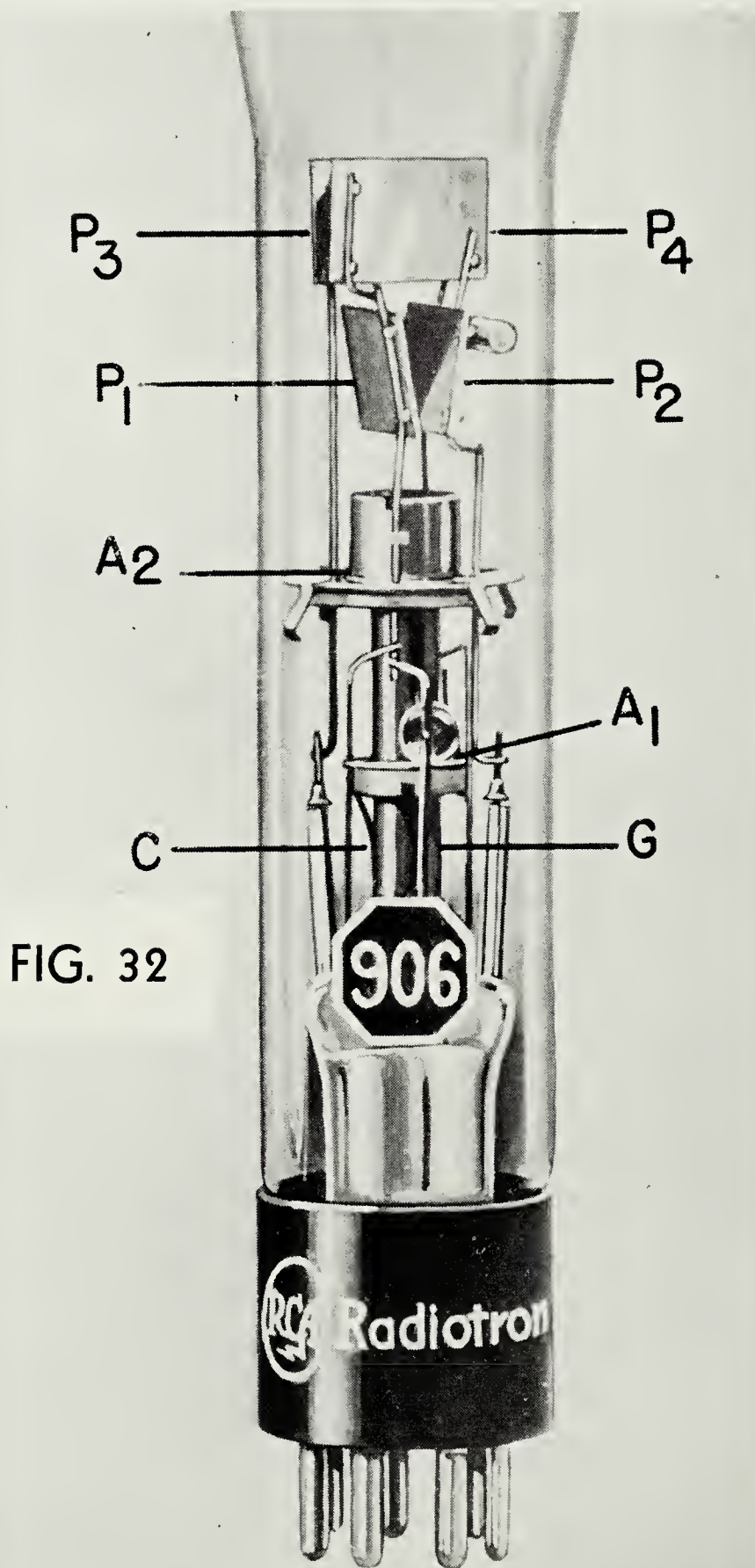


FIG. 32

tages, not the least of which is the fact that it cannot be damaged by overload. The result of potentials which are too high is that the electronic stream is merely pulled over beyond the edge of the screen or possibly hits the plates, and no damage is done. In the case of the customary meter a bent pointer or a burnout would be the result of such overload.

Another advantage is that the cathode-ray instrument requires no power in the ordinary sense of the word. The application of potential is sufficient. In the case of the customary measuring device, power is drawn from the circuit to overcome the electrical resistance of the meter itself.

However, like all good things, the cathode-ray voltmeter has some disadvantages. Principal among these is the fact that the movement *per volt* is very slight. On the scale mentioned above, it would be necessary to apply 25 volts to the deflecting plates to move the beam 25 millimeters or about one inch. In the tube of Figure 31 the screen is approximately $5\frac{1}{2}$ inches in diameter. The application of 140 volts would be necessary to move the beam across this screen. Some tubes have an efficiency of only one-half that mentioned, and would require 280 volts to perform the same function. The sensitivity must be increased if possible, so that the beam will move all the way across the plate under the influence of a very low voltage. If this can be done, the equipment which supplied the potential to the plates can be made quite simple in form and at low cost.

How can the sensitivity be increased? One method would be to locate the deflecting plates closer to the beam so that the electrostatic force may exert a greater effect. But this would limit the swing of the ray as it is swung from one side of the screen to the other. It would hit the plates, and its effect on the screen would be nullified from that point on.

The unusual shape of the tube is necessitated by this swing of the beam around what might be termed a hinge near the deflector plates. If the image viewed on the fluorescent screen is to be of any size, the screen must be located some distance from this hinge. As the distance between the plates and the screen grows greater, the tube increases in size at the flared end, and becomes very unwieldy, although the original angle at the point of bending of the ray remains the same. The screen surface over which the spot is made to move becomes larger, as is shown in Figure 36B where the screen diameter is increased from that at "A" to that of "B". The spot will move over a greater distance on screen "B" than it will on screen "A" since the radius of the arc over which the beam swings is larger.

The disadvantage in this means of increasing sensitivity lies in the fact that the increased length of the tube causes it to become even more unwieldy. The difficulties in construction of the tube are increased, since there are limits to the strength of the unsupported glass of the envelope.

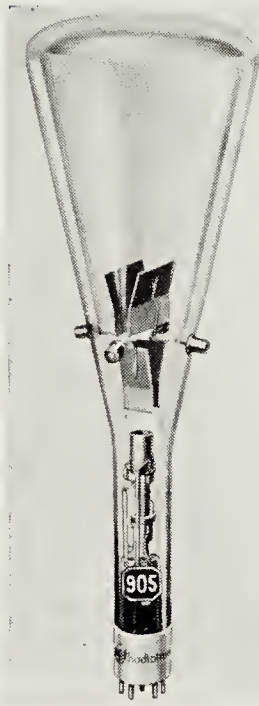


Fig. 31

The evacuation of air from the tube is of an extremely high order* and increases with age. In consequence, if the tube is not carefully designed, implosion (or explosion inward) may result. In fact, there have been some cases in which the mere difference of temperature from outdoors to indoors has had sufficient effect on the glass of the envelope of a large cathode-ray tube to cause such a collapse, even though the tubes in question were not being handled directly, but were suspended on springs in a shipping case.

The effect of the accelerating potentials is also involved in this matter of sensitivity. The efforts of the potentials on the anodes are exerted to force the electronic beam from the cathode to the screen in a straight line. The deflecting plates exert theirs toward bending it first to one side and then the other. As more voltage is applied to move the stream faster in the forward direction toward the end of a long tube, more force must be exerted to divert it to one side or the other.

This can be understood by taking the example of William Tell and his famous arrows. These were shot by him at a target some distance away. Now imagine someone located half way between the archer and the target, and striking the arrows as they passed with a big stick, so as to divert them from their straight line of travel. But suppose Mr. Tell had taken a larger bow and had shot at the target with twice the force previously exercised. The man with the stick would have to use twice as much force against the arrows to direct them the same distance away from the target. And so it is with the influence of the anode voltages on the electronic stream as opposed to the potentials of the deflecting plates. If one is increased, the other must also be increased to retain the same sensitivity.

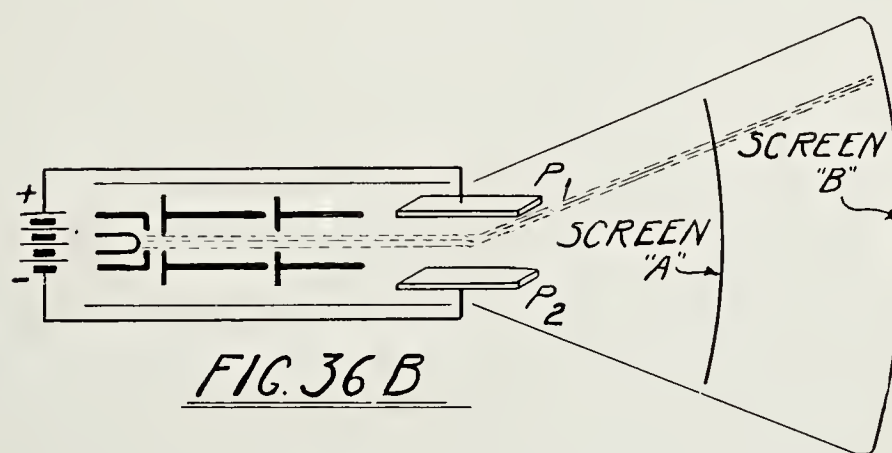


FIG. 36 B

There are so many disadvantages to these methods of increasing the sensitivity that the designer of the tubes is usually between the devil and the deep blue sea in his selection of an unwieldy size and shape of tube, a high sensitivity, or low accelerating voltages. His final decision is usually a compromise, and the result is a reasonable sensitivity of beam, a good brilliance of spot on the screen, and an average value of accelerating voltage which will leave the beam reasonably sensitive to deflection.

* .001 micron or better. This is equal to that of the ordinary radio tube and many times that of the ordinary electric light bulb.

Motion Picture Laboratory Practice

NINTH INSTALLMENT

Eastman Positive Motion Picture Film (No. 1301)

This is a relatively slow, fine-grained, non-color-sensitive emulsion intended for projection positives. Typical characteristic curves and a time-gamma curve are shown in Figure 25, and a wedge spectrogram indicating the spectral distribution of sensitivity to tungsten illumination in Figure 18.

The curves in Figure 25 are typical of those produced in fresh D-16 developer at the gammas shown. It is well known, however, that the shape of the characteristic curve for positive film can be modified profoundly by the composition of the developer, and many laboratories use developers which produce curves quite different from those shown in Figure 25. In some cases, for example, the transition between the "toe" and the "straight-line" portions of the curve takes place at relatively low densities, while in other cases this transition may occur at much

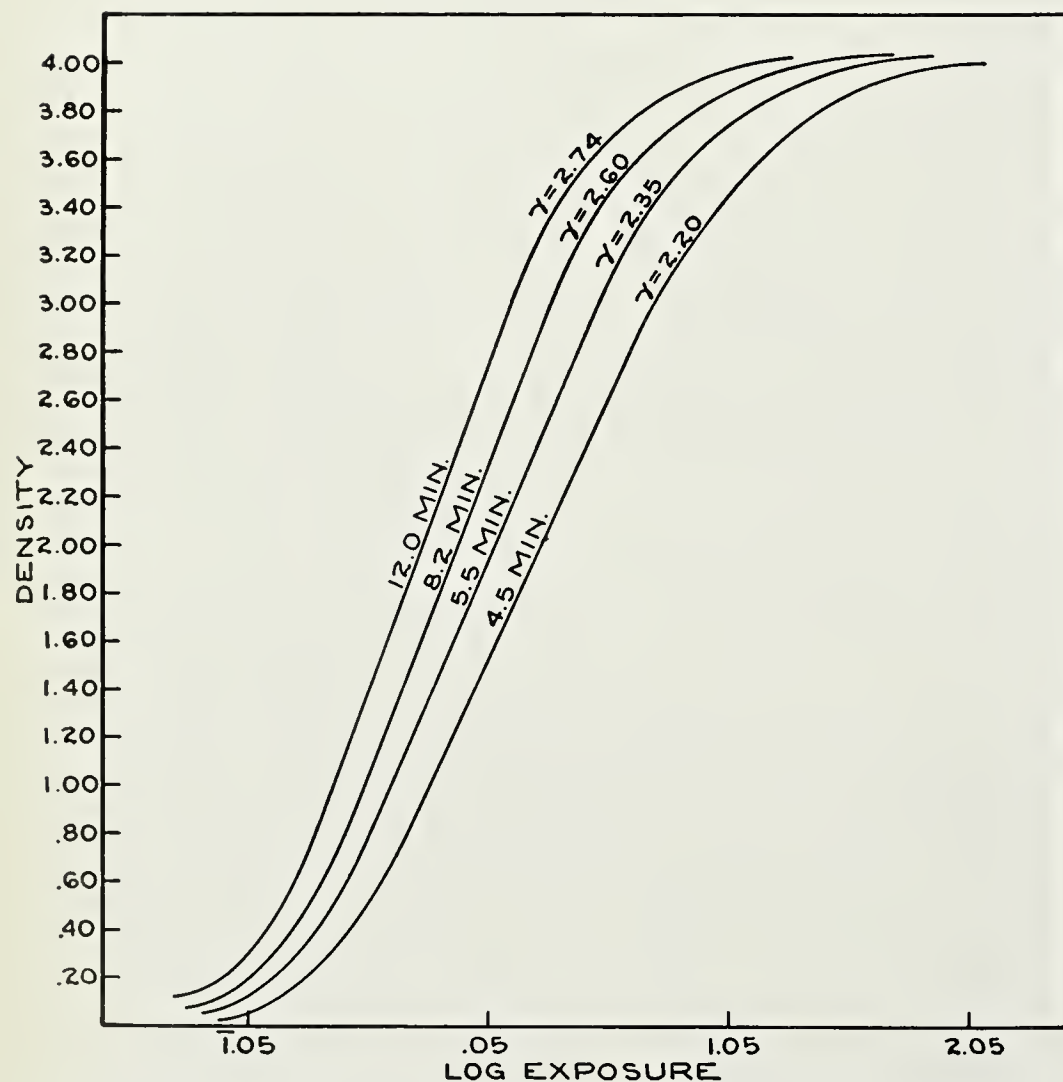
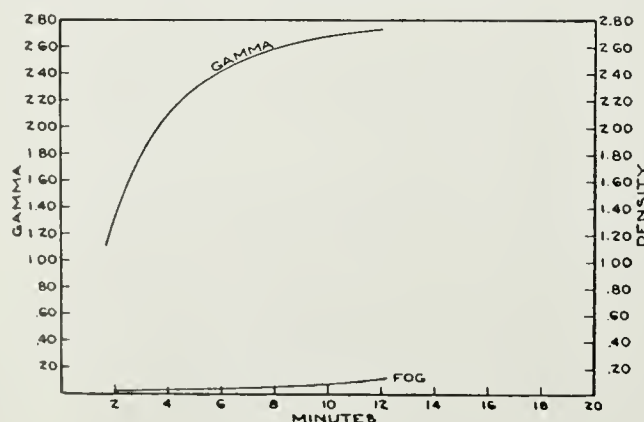


FIG. 24—Above: Characteristic or $D\text{-log } E$ curve of Eastman Sound Recording Motion Picture Film (No. 1359) developed in positive formula D-16 for variable-width recording.



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

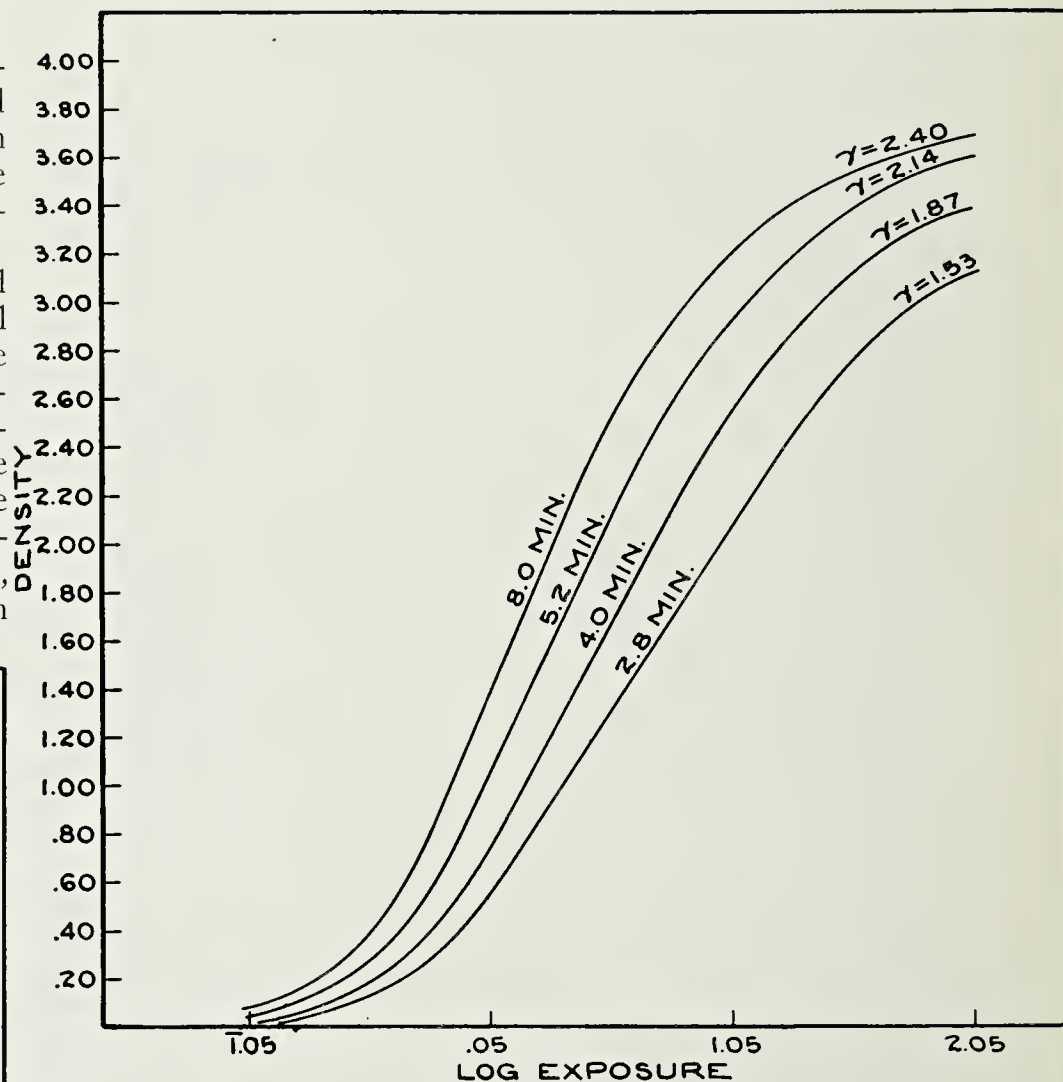
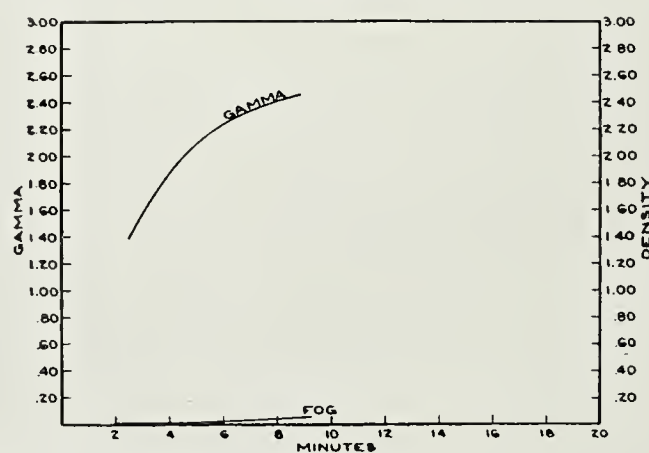


FIG. 25—Above: Characteristic or $D\text{-log } E$ curve of Eastman Positive Motion Picture Film (No. 1301) in D-16.



At left: Time-gamma curve of the same film. For description of conditions under which these curves were obtained,

higher densities. In the first case the "toe" is comparatively short, while in the second case it is much longer and is frequently referred to as "basket-shaped."

When the conditions are such as to produce on positive material a characteristic curve having a long, sweeping or "basket-shaped" toe, we would naturally expect a screen image in which the gradation within the highlight region is relatively soft, as compared with that in the half-tones and shadows, while with processing conditions resulting in a short toe the gradation would be more or less uniform up in the highlights, breaking sharply in the extreme highlights.

The point of transition between the straight-line portion of the curve and the "shoulder" is also influenced by processing conditions. However, this is generally of minor importance, as the density at which the transition occurs is, in the vast majority of cases, beyond that which is practically useful in a positive for projection.

Eastman Positive Motion Picture Film is much slower than negative film; its speed, however, is sufficient for printing from average negatives with the printing machinery in general use. Since it is not color-sensitive, an abundance of greenish yellow light, such as provided by a Series 0A Wratten Safelight, may be used with comparative freedom from fog, thus facilitating the handling of raw stock in printing and in development.

Eastman Sonochrome Tinted Positive Motion Picture Film

Eastman positive film is supplied in several tinted bases under the name of Sonochrome Tinted Positive Motion Picture Film. The emulsion is the same as regular positive No. 1301; only the base color is different. The tinted bases include Argent, a silvery, hueless base, designed for use in place of regular positive, and several other tints which run the entire gamut of useful colors. Eastman Sonochrome Tinted Positive Film does not interfere with the reproduction of sound, as the light to which the photo cells in use respond passes freely through all of the tints.*

Duplicating Materials

A good duplicate negative is one capable of giving a print which is a facsimile of a print made from the original negative. It should not only reproduce accurately the tones of the original (unless the quality of the original is

*Jones, L. A.: "Tinted Films for Sound Positives," *J. Soc. Mot. Pict. Eng.*, Vol. 13, No. 37 (May, 1929), p. 199.

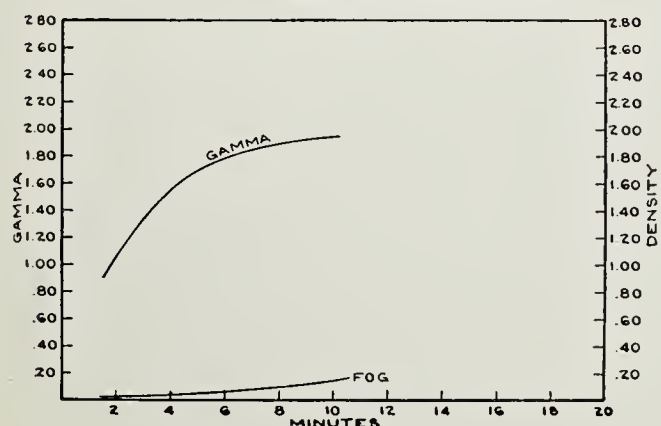
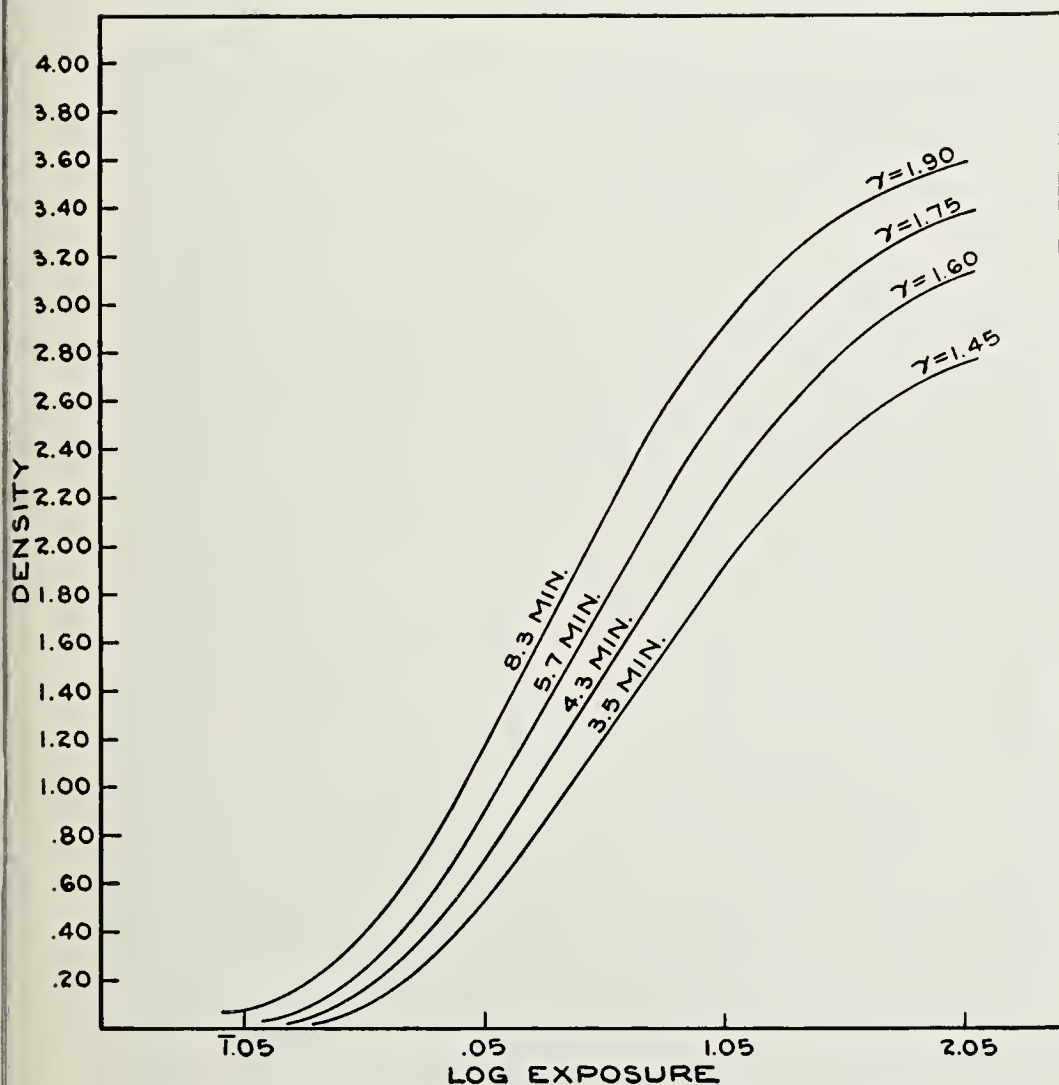


FIG. 26 — Above: Characteristic or $D\text{-log } E$ curve of Eastman Duplicating Positive Motion Picture Film (No. 1355) in D-16.

At left: Time-gamma curve of the same film.

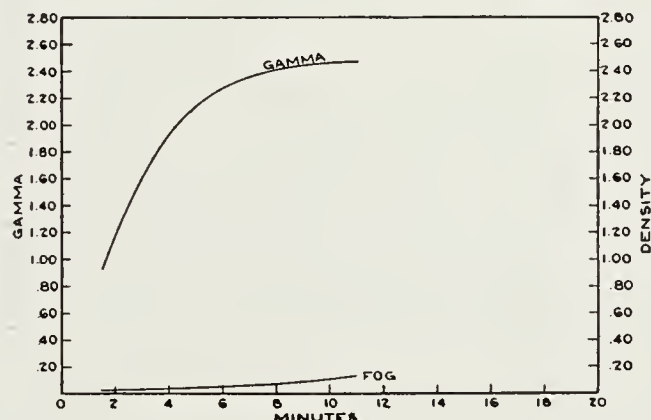
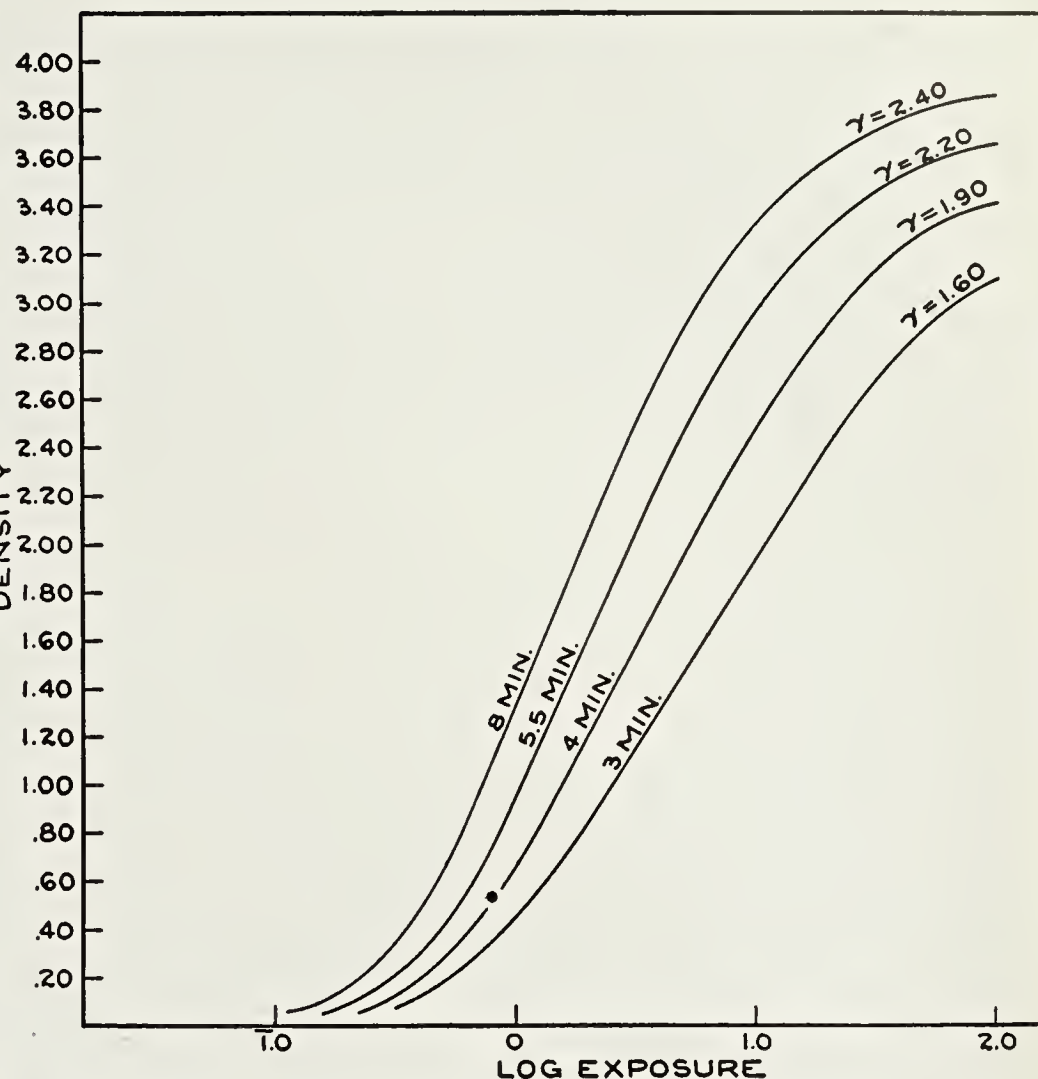


FIG. 27 — Above: Characteristic or $D\text{-log } E$ curve of Eastman Duplicating Positive Motion Picture Film, Type B (No. 1362) in D-16.

At right: Time-gamma curve of the same film.

to be modified in the interest of better printing quality), but the definition and graininess of the print from the duplicate negative should compare favorably with a print from the original negative.

To attain such results, special emulsions are necessary. The emulsions employed in making the master positive and the duplicate negative must have the following characteristics:

1. Sufficient latitude to reproduce correctly the greatest scale of densities likely to be met with in original negatives.
2. High resolving power—the ability to reproduce fine detail; otherwise, the definition of the image will be affected.
3. A low order of graininess; otherwise, the cumulative increase in graininess in making a master positive and a duplicate negative will produce objectionable granularity in the exhibition print.
4. It must have sufficient speed for use on optical printers where the light intensity is usually lower than on contact printers.
5. Straight-line start at a low density.

The best results as regards freedom from graininess are obtained when the master positive is developed to a relatively high gamma and the duplicate negative to a much lower gamma.* This is due to the fact that with negative emulsions the graininess increases very rapidly

(Turn to Page Fourteen)

Motion Picture Laboratory Practice

(Continued from Page Thirteen)

with an increase in gamma, while with positive material the graininess rapidly reaches a maximum, and over the useful range of gammas remains very nearly constant.** Consequently, the emulsion used for making the master positive should produce an image free from undue graininess and have an exposure range (latitude) sufficiently extended to result in satisfactory reproduction at a relatively high gamma. The emulsion used for making the duplicate

These films are coated on a lavender base for identification purposes, to prevent possible confusion with Eastman Positive Film.

Eastman Duplicating Negative Films

Two Eastman duplicating films are available for the duplicate negative: Eastman Duplicating Negative, Regular (No. 1503), and Eastman Duplicating Negative, Fast (No. 1505). The sensitometric characteristics of these films are shown in Figures 28 and 29, respectively.

In general, the two materials are much the same except with regard to speed, Eastman Duplicating Negative, Fast, being approximately two and one-half times as fast as Eastman Duplicating Negative, Regular. The higher speed is desirable in projection printing and also tends to compensate for the greater density of the master positive, so that light sources of the same intensity may be used as for regular positive film.

A yellow dye is incorporated in the emulsion of both of these films. The addition of a yellow dye to a fine-grain non-color-sensitive emulsion increases the resolving power by reducing irradiation, or the scatter of light within the emulsion, extends the exposure range, or latitude, and lowers the maximum contrast of the emulsion. In this way, an emulsion is produced which has an exceedingly fine grain with high resolving power, and the latitude and low contrast required in a material for duplicate negatives.

The time-gamma curve of No. 1505 is flatter than that of No. 1503, and within the range of gammas to which the duplicate negative is ordinarily developed the processing latitude is slightly greater. The maximum gamma, on the other hand, is greater for No. 1503 than for No. 1505. The difference, however, is slight and is not of any practical advantage, owing to the control possible in making the master positive.

negative should, on the other hand, have all of these characteristics at a much lower gamma. It should differ from a negative emulsion designed for camera use primarily in having a much higher resolving power and a lower order of graininess.

Eastman Duplicating Positive Motion Picture Films

Two Eastman duplicating films are available for the master negative: Eastman Duplicating Positive Film, Regular (No. 1355), and Eastman Duplicating Positive, Type B (No. 1362). The sensitometric characteristics of these materials are shown in Figures 26 and 27, respectively. Both have the high resolving power, fine grain, and latitude required in a duplicating emulsion, but the latter has the higher maximum contrast and is more suitable for use at high gammas, as its latitude and general quality are superior to those of Eastman Duplicating Positive Film, Regular, at gammas greater than 1.8. The time-gamma curve of Eastman Duplicating Positive Film, Regular, begins to flatten out at gammas above 1.7, while that of Eastman Duplicating Positive Film, Type B, does not begin to flatten out until a gamma of approximately 2.4 is reached. The former is, therefore, better adapted for use at gammas ranging from 1.6 to 1.8, and the latter from 2.0 to 2.4.

*Crabtree, J. I. and Schwingel, C. H.: "The Duplication of Motion Picture Negatives," *J. Soc. Mot. Pict. Eng.*, Vol. 19 (1932), pp. 891, 908.

**Crabtree, J. I.: "The Graininess of Motion Picture Film," *Trans. Soc. Mot. Pict. Eng.*, Vol. 28 (July, 1927), p. 223.

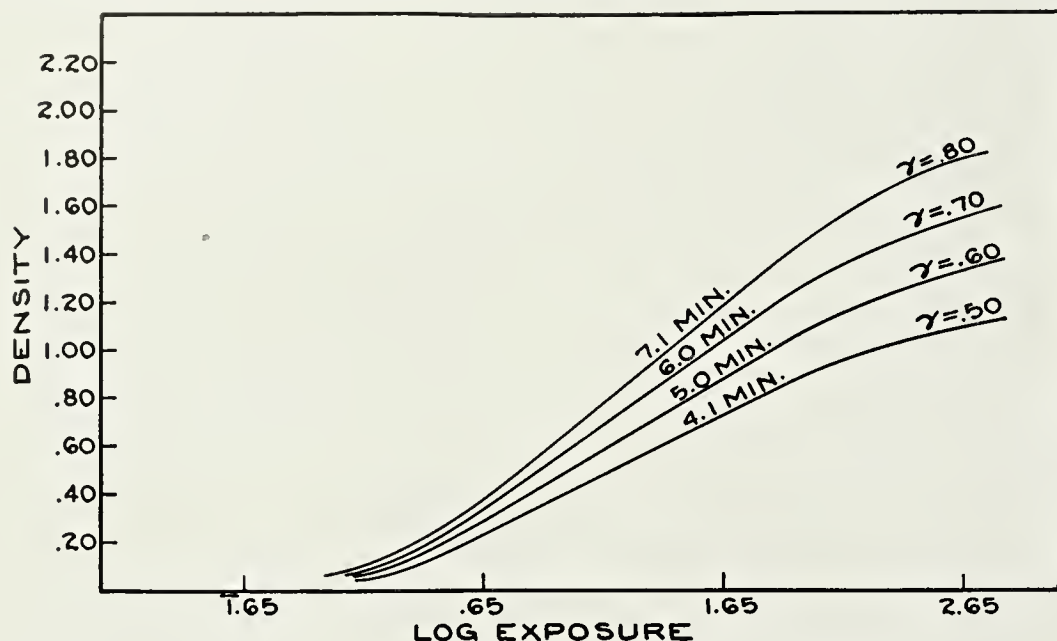


FIG. 28—Above: Characteristic or D-log E curve of Eastman Duplicating Negative Motion Picture Film (No. 1503) in D-76.

At left: Time-gamma curve of the same film.

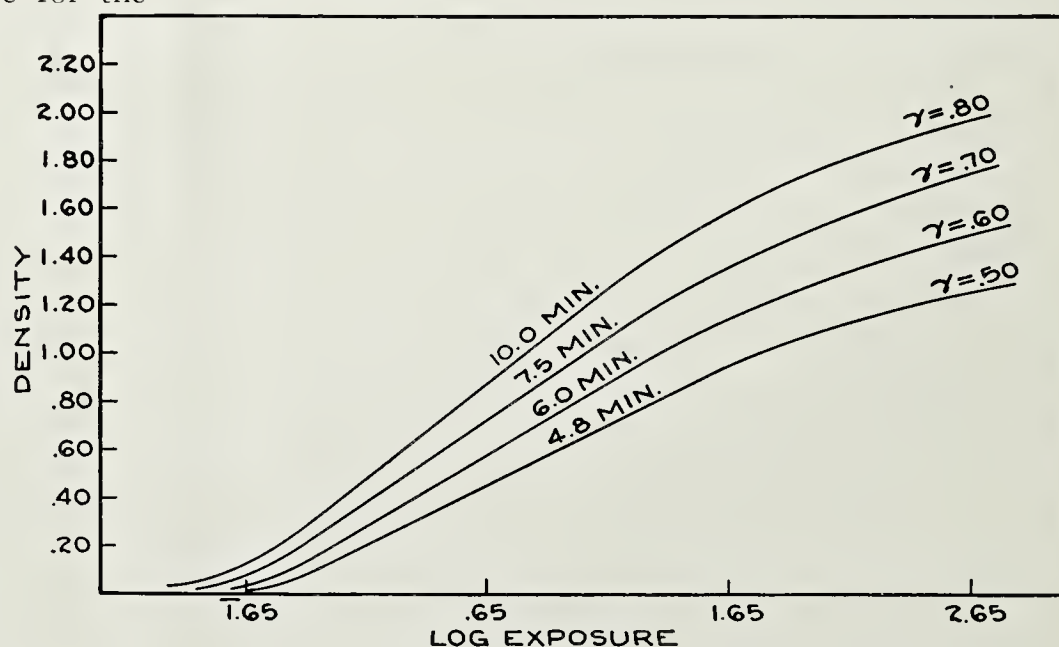
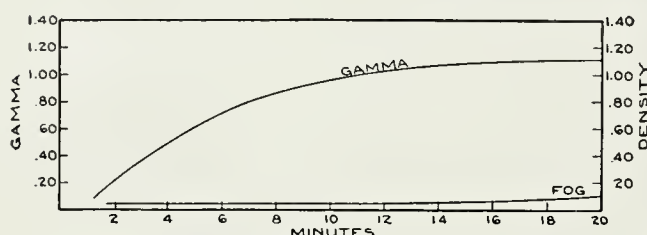
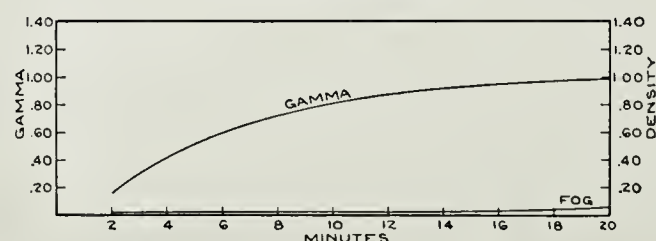


FIG. 29—Above: Characteristic or D-log E curve of Eastman Duplicating Negative Motion Picture Film (No. 1505) in D-76.

At left: Time-gamma curve of the same film.



Cinemabiography

ANTHONY CAPUTO was born in Chicago, March 18, 1905. Started in Commercial Photography in July, 1919, with Jahn Ollier, engraving. From there to Kaufman Fabry, back to Jahn Ollier to the latter part of 1924. Became acquainted with Eugene Cour who was making an industrial Motion Picture of the Jahn Ollier plant. At that time became very much interested in Motion Pictures and left Jahn Ollier to go with Eugene Cour making stills and learning the technique of Motion Picture Cameras and getting laboratory experience.

In 1927 he became associated with Pathe News handling the Motion Picture Camera and portable laboratories. In the fall of 1929, Eugene Cour, Ralph Saunders, and Caputo were the first crew to put out a subject with sound on location with a portable laboratory. They set up the laboratory in a hotel room in Minneapolis and covered the Minnesota-Wisconsin game in the afternoon. They made the screen one hour and forty minutes after the game that night. This was a great feat in sound specials as they did not have to depend on any laboratories to get their film on the screen that night.

In the fall of 1931, Caputo was put in charge of the Chicago Office of the Pathe News, and has held that post ever since.



Anthony Caputo

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Some of the interesting assignments Tony Caputo covered for Pathe News are as follows. Chasing Dillinger around the country, Stock Yards Fire, Pittsburgh Flood, National Republican and Democratic Convention, Kentucky Derbies, 500 Mile Auto Classic at Indianapolis, exclusive story on Jake Factor kidnapping and many Strike Riots.

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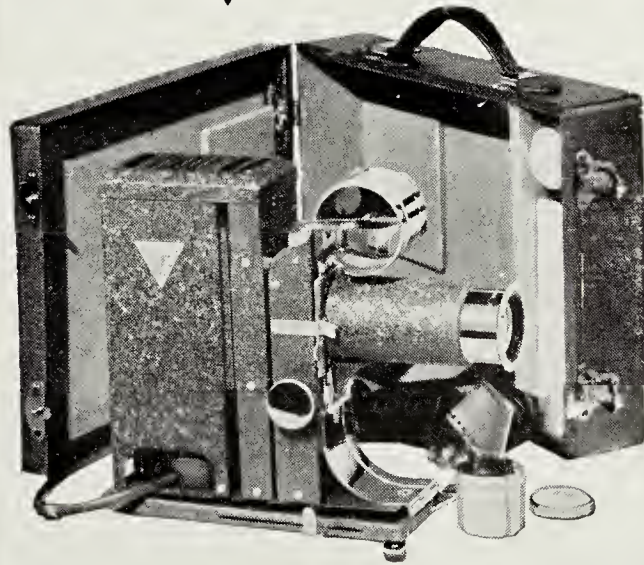
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NOVEMBER, 1937

VOL. 3

NO. 11

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By W. H. S.

A. F. of L. Stands Pat on Offer to C. I. O. Delegates

THE peace committees of the A. F. of L. and the C. I. O. rebels became deadlocked last week and parted ways for an eight day recess.

Before the recess the American Federation of Labor conferees offered a plan upon which peace might be signed. The proposal was bluntly refused by the C. I. O. who feared it might mean abject surrender.

The A. F. of L.'s offer was that the twelve big "Unions" that broke from the federation to form the rebel organization C. I. O. under John Lewis would be reinstated without prejudice, the status of newer C. I. O. Unions to be determined by conference and convention. The principal of Industrial Unionism of workers into big mass Unions, as demanded by Lewis, would be preserved. Philip Murray, C. I. O. delegate, declared that such a plan would wreck the drive to organize "Millions of unorganized workers in basic industries."

The A. F. of L. Committee declared that the tactics of the C. I. O. delegation were jeopardizing the possibility of reaching a settlement of the controversy and that while they were in the committee room a public statement rejecting the A. F. of L. proposal was given to the press without advising the conference. This seems like further proof of the falsity of Lewis' boasts of a huge C. I. O. membership. The C. I. O. delegates made extravagant and unsupported claims of membership but on analysis it was clear to the A. F. of L. committee that the C. I. O. has little, if any, dues paying membership other than the members of the organizations that originally belonged to the American Federation of Labor.

Membership in the A. F. of L. is based solely on the number who pay dues into their Union Treasuries, the A. F. of L. suspects that the C. I. O. has padded its rolls with hosts of non-dues-paying members as they refuse to show their hand as to the actual number of dues paying members. The conference has been postponed until November 4th.

I. A. T. S. E. Emblem on All West Coast Films

A letter from International President George E. Browne advises that on and after October 18th, 1937, all films released from the West Coast Studios will bear the emblem of the International Alliance. This is in accordance with an understanding and agreement reached between our International Organization and the producing interests.

The membership of Local 666 I. A. T. S. E. are happy to hear that International President George E. Browne has recovered from his recent illness.

Cameramen Get Test Strips

An innovation recently adopted by Jam Handy Picture Service, Inc., has the whole hearted approval of the cameraman of local 666. This company sends each cameraman the light test strips of the scenes he has photographed, this permits him to check up on his exposure and composition with a view to improvement where possible.

Virgil Bowers of Local 666 received a cablegram from Dublin, Ireland, notifying him he was the lucky holder of a ticket on the recent Irish Hospital Sweep Stakes and that upon presentation of his ticket to their representative he would be handed £385-0-0, approximately \$1,900.00. Bowers' big headache is he hasn't got the ticket and does not recall from whom he purchased it, if at all.

Harry Birch and Doc Gantz just returned from Lincoln, Nebraska, where they dodged the rain for a week to get a few scenes for Jam Handy Picture Service.

Tavernier and Savitt just completed a six week chore for Handy.

Howard Winner just reported at this office on his return from the War Zone in China.

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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

THERE is perhaps not a qualified cinematographer in the business who has not heard, at some time or other, of mysterious changes in calibration of Mitchell lens mounts. Maybe it has happened to you, and you have wondered how the thing came about. I'll admit that I've heard of this happening, but I couldn't figure out the reason, until a very good friend of mine, who owns several Mitchells, told me the latest authentic dope, right straight from the Mitchell factory.

Because of its characteristic design, the Mitchell is one of the sweetest cameras ever put into the hands of the craft. But, we pay for this handy operation in the fact that the camera must be handled with considerably more care than some others. And one of the most important things to remember about this camera is that the typical L-shaped base, on which the camera proper slides, is a casting. Now, a properly braced casting in the same shape can be an extremely stiff and rigid affair. But, because of the demands of the design, this rigid bracing is impossible on a camera of this type. Therefore, there can arise a very serious kind of trouble. Remembering that the front part of this L-casting carries the lens turret, while the base forms the bed for the steel slides on which the mechanism head slides, *and that it cannot be rigidly braced*, and you have a clue to the cause of the mysterious calibration changes.

Here's the reason: Picking up the camera by the magazine, or by the mechanism head, instead of by the base, throws a severe strain on the base casting. Because of the position of the head, its weight is thrown forward against the vertical part of the base casting, and there is grave danger that the perfect alignment of this part in relation to the focal plane within the head, will be changed.

Don't think for a minute that this is a pipe dream. The writer checked on this point, and found that the final operation in the Mitchell factory is one in which a highly skilled operator, using the finest gages, checks this alignment, and by tapping the front of the casting *gently* with a rubber mallet moves it ever so slightly forward or backward into a perfect right angle with the base. So, if a rubber mallet, tapping gently, can bend a casting slightly, doesn't it stand to reason that rough handling can offset the care lavished on the camera in the factory?

I've seen cameramen pick up an entire Mitchell outfit, including the tripod, *by the magazine*, to put it on a parallel. I've seen newsreel Mitchell outfits in which the mechanism head was so loose in its slideway, that it's a wonder a sharp scene was ever made.

The proper way to handle these cameras, they tell me, is to first loosen the tripod screw all the way. Holding the camera carefully, it is then swung around about 45° on the tripod head. This uncovers diametrically opposite corners of the base. The camera should then be picked up by these corners, taking care that none of the weight of the camera is lifted by either the magazine or the head.

The proof of the above pudding seems to be the fact that the aforementioned friend, who has always handled his Mitchells very carefully, can absolutely rely on the lens calibrations of any and all of his cameras.

It's worth thinking about, isn't it?

And while we're on the subject of Mitchell cameras, here's a tip for assistant cameramen that may save several hundred dollars some day: The N C Mitchell is blessed with one of the cleverest shuttle movements ever invented. The camera is not particularly hard to thread up, but

serious damage can occur unless certain precautions are taken. To thread this camera, the mechanism is first turned over by hand until the pull-down pins are disengaged. At this stage, the registration pins are *engaged*. They are pulled out of engagement with the film by loosening a knurled stud on the shuttle plate, which is then moved backward. The film may now be removed, or film may be inserted. We will not go into the amount of loop, but we want to bring out this highly important point—when the mechanism is in threading position, it can be wrecked by trying to turn the camera over. In other words, turning the camera will certainly break the shuttle movement or damage the mechanism to such an extent that the camera must be sent back to the factory.

Therefore, it behooves every assistant, and others who handle these cameras, to use the utmost caution in handling motors, cables, or batteries, while the cameraman is threading up the camera. Never plug your motor cable into the battery box or stage outlet without first checking to see that the switch is definitely OFF! If the camera is in use on a set and interlocked for sound recording, the safest thing is to pull the interlock cable, because if someone should turn over a recorder, or another camera, the one you're threading will turn too, unless you take steps to prevent it. (This does not hold true, of course, with all recording systems.)

With all the handy gadgets we have these days, I can think of no handier one than a small developing tank such as those sold for use with miniature cameras using 35-mm film. One of these little tanks can be carried around in the travelling bag, along with a thermometer, a package of Kodak acid fixing powder (hypo to you) and a half dozen Eastman M-Q tubes. And there you have a complete rig for developing tests easily and cleanly with far less wear and tear on the disposition than the time-honored way of shutting one's self up in a hotel bathroom with a pair of drinking glasses, one holding soup and the other the hypo.

I'm indebted to Harry Birch for the above stunt. He has used it for years, and I can speak from experience when I say that it not only saves time, but turns out a far neater job.

The average tank will require about 16 ounces of solution to cover the film properly. This amount is easily obtained. It is two ordinary drinking glasses full, since the average glass holds approximately eight ounces.

I've found that the handiest way to use this system is to get two glass pitchers from a bell hop, into each being measured the proper amount of water. In one the contents of the M-Q tube is dissolved, in the other, half of the contents of the hypo package. The test strip of about four feet is loaded into the tank in the dark (usually in the bathroom) the cover is put on, and from then on all the operations can be carried on out in the room with the usual amount of light. One can even absorb a drink while the film develops, because Dupont Superior or Eastman Super X will develop in the above solution strength in seven minutes at 65° F. The film should be agitated occasionally during this time to insure even development. When the time is up, pour the developer away, rinse with cold water, and pour in the hypo. Fresh hypo will fix the film out completely in ten minutes, and if desired, the test can be washed for at least thirty minutes if it is desired to keep it. Many experienced cameramen keep all tests, in case there should be any dispute with the laboratory over whether or not there was anything on the film.

Film should be developed as above at a temperature of 65° F. If the developer is warmer, give a shorter

The Midwest Section of The Society of Motion Picture Engineers – Meet in Chicago

Importance of Exposure in Photography

ON the evening of Wednesday, October 27, members of the Society of Motion Picture Engineers and their guests assembled in the rooms of the Western Society of Engineers in the Engineering Building, Wacker Drive and Wells Street, heard an extremely well delivered talk by Mr. Carl G. Miller, of the Weston Electrical Instrument Corporation. The subject was "The Importance of Exposure in Photography," and the lecture was illustrated by charts, slides, and colored motion pictures.

Briefly covering the development of exposure timing devices from the early Watkins type of "actinometer," which used a sector of paper which was tinted by the action of light, up to the modern photo-electric meters, Mr. Miller drew a fascinating picture of the importance of exposure control.

By means of charts and diagrams, the speaker explained the basic design features underlying the present day Weston meter, and pointed out that the meter, because of its design, measured the *brightness* of the object to be photographed, in terms of "candles per square foot" rather than in foot candles, the usual term applying to measurements of the light falling on any surface.

Because of the basic design, these instruments are made to "see" a cone of roughly the same angle as the camera lens—that is, 60° for the usual still camera meter, and 25° for the newer ciné meter. In describing the construction of the meters, Mr. Miller showed how the standard Weston photronic cell, ordinarily responsive to almost a 180° angle, had been limited in its acceptance angle in the meter by means of a baffle and lens system.

Admitting that the photronic cell was subject to fatigue, the speaker pointed out that this was of such negligible amount as far as photography was concerned that it could be ignored. He also briefly described the design of the pivot and jewel assembly of the meter movement, showing that although these parts were extremely small and delicate, they were so designed that with ordinary handling no damage would result to the meter.

The amount of electrical energy available from the photronic cell is an almost unbelievably small quantity—at full scale deflection of the meter pointer, the energy is approximately one-millionth of one watt, and it speaks volumes for the design and construction of these meters when it is realized that they are in the hands of thousands of users all over the world with relatively little trouble.

Pointing out that the meter contained a very powerful magnet of cobalt steel, Mr. Miller suggested that these meters be kept away from watches, since the magnetic field around a meter is sufficiently strong to magnetize a watch.

By means of charts showing the ability of the human eye to see the various colors of the spectrum, as compared with the response of the cell to the same colors, the speaker demonstrated that the cell of the Weston meter comes far closer to seeing the colors in the same way that film does, than does the human eye. The human eye, for example, cannot respond at all to ultra-violet, but all photographers are aware that film is very sensitive to the violet, blue and ultra-violet end of the spectrum, and it

was pointed out that the Weston cell is also responsive to this end of the spectrum to a high degree. This means that it is a more reliable device for determining proper exposure than the human eye.

The proper use of the meter in finding exposure time was carefully explained, using a typical Hurter & Driffield curve and a sample sensitometric strip. Since these points are covered in the instruction booklet supplied with each exposure meter, no attempt will be made here to report on this feature of the talk.

The lecture proved to be one of extreme interest to all of the members of 666 who were present, and the fact that a number of 666 cinematographers, not members of the Society of Motion Picture Engineers, were present, shows a healthy interest by our men in all instructional programs which promise to increase their knowledge of their craft.

At the close of the meeting Mr. Miller stated that the Weston branch office, located in the Engineering Building, would be able to give a reasonably accurate check on meters brought in, although he was careful to point out that this check necessarily could not be as precise as one made in the factory in Newark.

The Mid-West Section of the Society of Motion Picture Engineers is to be congratulated on the interest of this lecture, which was kindly thrown open to all persons interested in either the Society, or in the subject under discussion.

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BURTON HOLMES FILMS
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7510 N. Ashland Ave.

Chicago, Illinois

Motion Picture Laboratory Practice

TENTH INSTALLMENT

CHAPTER III

COLOR FILTERS AND POLARIZING SCREENS

PART 1—COLOR FILTERS

Among the many devices employed by the motion picture photographer in his creative efforts, filters occupy an important place. It is, however, only within the last few years that cameramen generally have been able to use filters with complete success. Filters were of little value with the blue-sensitive and orthochromatic materials which were in general use prior to 1927, because the limited color sensitivity of these materials very definitely restricted the cameramen to one or two filters, and even with these the increase in exposure was too great to be practical except under the most favorable conditions. The introduction of panchromatic negative film in 1926, with its greatly increased color sensitivity, and Super Sensitive Panchromatic Negative Film in 1931, with its still higher speed and better balanced color sensitivity, made the general employment of filters possible in motion picture work for the first time.

Today, filters are employed chiefly for exteriors as, except for special effects, satisfactory results are obtained on Super Sensitive Panchromatic Negative without filters when using tungsten illumination. The use of filters in exterior work is for the purpose of securing clouds, lowering the brilliancy of the sky, removing haze on distant objects, controlling contrast, and for the production of special effects, such as moonlight results by daylight.

Light and Color—The Spectrum

An intelligent understanding of the properties and the uses of light filters requires some knowledge of light and color, as well as of the color sensitivity of photographic emulsions and the spectral characteristics of light sources. No apology is needed, therefore, for beginning the discussion of filters with a brief review of the nature of light and color.

Light is believed to consist of waves of an electromagnetic nature not unlike those employed in wireless telegraphy or radio broadcasting, differing principally, if not exclusively, in wave length. The sensation of *light* is produced by such waves when they are not shorter than about 400 millimicrons (one millimicron equals one-millionth of a millimeter), or longer than 740 millimicrons. On the one side lie the invisible ultra-violet rays, the x-rays, the gamma radiation of radium, and the cosmic rays from interstellar space. On the other side are the infra-red heat waves and the waves used in various forms of electro-communication, such as wireless telegraphy, short-wave broadcast, and the normal broadcast band.

If sunlight, or radiation from any other source, is made to pass through a prism, it is split up into its component parts, giving the series of colors found in the rainbow. The rainbow is, in fact, formed by the drops of water splitting up the sunlight in a similar way. The prism bends the various wave lengths differently, as shown in Figure 30. The various wave lengths present, when thus separated, affect the eye differently, and produce the sensation of *color*. The band of colors produced in this manner is

termed a *spectrum*. Normal white light contains all wave lengths within the visible range and, consequently, the spectrum is continuous; however, if the light is colored on entering the prism, there will be dark bands in the spectrum indicating the absence of certain wave lengths. Color may, therefore, also be regarded as white light from which certain wave lengths have been removed.

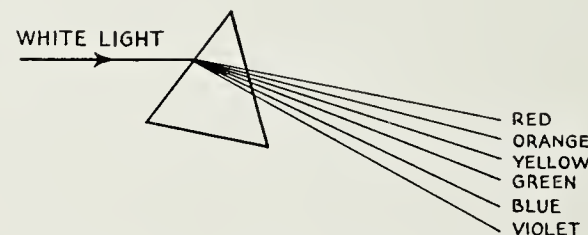


FIG. 30—The formation of the spectrum.

A simple arrangement of the spectrum is shown in Figure 31, the numbers representing the length of the waves in millimicrons, and the colors as seen by the normal eye are placed immediately above. If the position of the various colors in relation to wave length are fixed in the mind, diagrams showing the color sensitivity of photographic materials, the spectral energy distribution of arti-

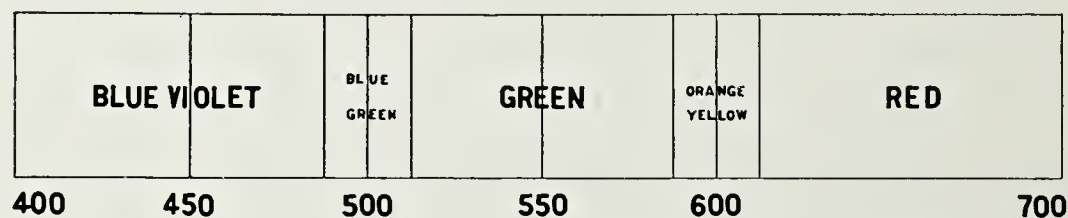


FIG. 31—Division of the spectrum into five color areas.

ficial light sources and the transmission of filters will be understood.

White light may be regarded as being composed of blue-violet, green, and red light—the visible spectrum can be divided into three approximately equal parts which produce the color sensations blue-violet, green, and red. A green filter appears green because it absorbs blue-violet and red. In the same way, a blue filter appears blue because it absorbs green and red, and transmits blue. All other colors may be produced by the admixture in varying proportions of these three primary colors, or the removal of parts of them from white light. Yellow, for example, is produced by the absorption of blue, so that a yellow object absorbs blue and reflects green and red. Magenta is a mixture of blue and red, or white light minus green, and so on. Except for the rainbow, or some other chance manifestation of the spectrum, we rarely see the pure colors of the spectrum in nature. Most natural colors are impure; that is, the preponderating color is mixed with others. A yellow object, for example, may reflect some blue; all that is necessary for the object to appear yellow is that the absorption for blue be greater than for the rest of the spectrum. Many brilliant greens are mixed with blue and with yellow, and even the bright reds may reflect some blue and green. Colors produced by carefully prepared pigments or dyes show more complete absorption than natural colors, but even these often differ materially from pure spectrum colors.

The Brilliance of Colors*

It is a matter of ordinary observation that some colors appear brighter than others. Yellow, for example, appears much brighter than blue; and red, while usually brighter than blue, is darker than yellow. This is due to the fact that the eye does not respond equally to all colors. If we assume an equal energy spectrum, that is, one with constant energy at all wave lengths, the relation between wave length and the visual response may be represented by a curve of the type shown in Figure 32. From this it is evident that beginning at the limit of visibility near a wave length of 400 millimicrons, the response of the eye increases with the wave length up to a wave length of approximately 550 millimicrons, beyond which point the visual response decreases until it becomes zero at a wave length of approximately 740 millimicrons. In other words, the yellow-green region appears the brightest to the eye; and the yellow, orange, and red on one side, green, blue-green, and blue on the other, appear progressively darker until the limits of visibility are reached in the extreme red and the violet.

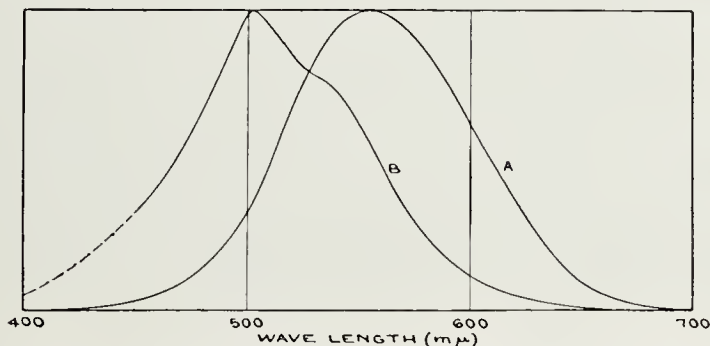


FIG. 32—Color brilliance curves: A—Visibility curve of average normal human eye at normal or high intensity; B—Visibility function of human eye at low intensity levels.

The Sensitivity of Photographic Materials to Color

Attention has already been directed to the fact that the photographic effect of radiation falling on a sensitive material varies with the wave length. In other words, photographic materials do not respond equally to all parts of the spectrum. The distribution of sensitivity throughout the spectrum constitutes what is termed the spectral sensitivity and varies greatly with different sensitive materials. It is usual, however, to consider all sensitive materials as belonging in one of three groups: (1) ordinary or blue-sensitive, (2) orthochromatic,* and (3) panchromatic.**

The spectral sensitivity of typical materials of each of these three types is shown in Figure 33. The sensitivity of all three classes of materials is at a maximum in the invisible ultra-violet region. Ordinary or blue-sensitive materials are sensitive up to about 580 millimicrons, a

*In the photometric field the terms "brilliance" and "brightness" have very definite significances. "Brilliance" refers to the subjective effect or the sensation experienced by the observer; "brightness" is the objective term corresponding to this, and refers to the property of the thing observed which causes the sensation of "brilliance." This property can be measured. In common parlance, it is customary to refer to objects, colors, etc., as being "bright" when it is the sensation produced by them in the observer which is meant. The correct term for this is "brilliant." In this book, however, the popular terms "bright" and "brightness" have been retained in many cases in which it would have been more correct to say "brilliant" or "brilliance." This sacrifice in scientific accuracy is not likely to lead to misunderstanding, and will not confuse the lay mind.

*Orthochromatic from the Greek words *orthos*—correct, and *chromo*—color; literally meaning "correct color." The term is not, however, entirely appropriate, since orthochromatic materials do not reproduce colors correctly, being practically insensitive to red.

**Panchromatic from the Greek words *pan*—all, and *chromo*—color; thus, literally "all colors."

region which includes violet, blue, and blue-green. The sensitiveness of the so-called orthochromatic materials extends to a wave length of approximately 600 millimicrons, so that such materials respond also to green and yellow-green. With panchromatic material the sensitivity extends beyond 700 millimicrons, the practical limit of the visible spectrum. A panchromatic material is sensitive, therefore, to all wave lengths which produce the visual sensation of light, and it is only through the use of such a material that a scene containing colored objects can be rendered in the correct relative tone values as seen by the eye.

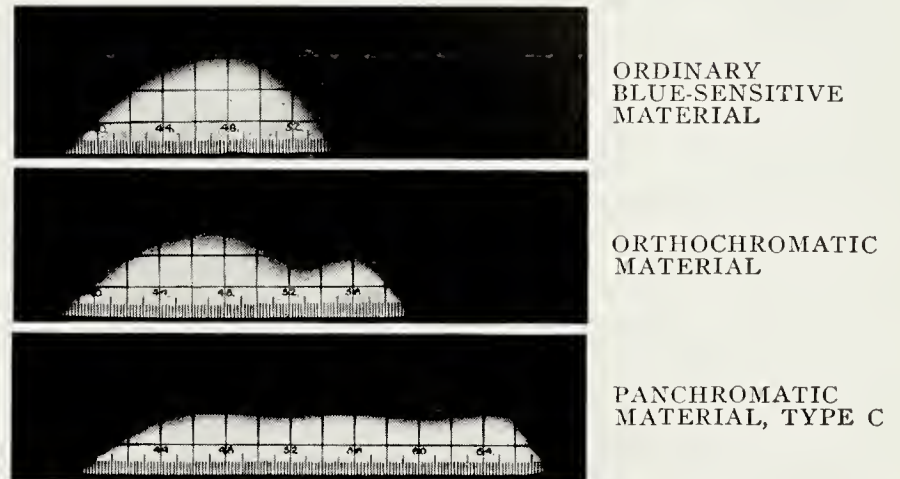


FIG. 33—Distribution of spectral sensitivity of three types of photographic material.

Effect of the Light Source

The response of a particular photographic material to light from any source, say, sunlight or the Mazda lamp, depends not only on the spectral sensitivity of the material but also on the distribution of energy in the spectrum of the light source. It is necessary, therefore, to examine the differences in the light sources in general use and the effect of these upon spectral sensitivity.

A convenient qualitative comparison of the effect of variations in the spectral characteristics of the light sources on the spectral sensitivity of Eastman Super Sen-

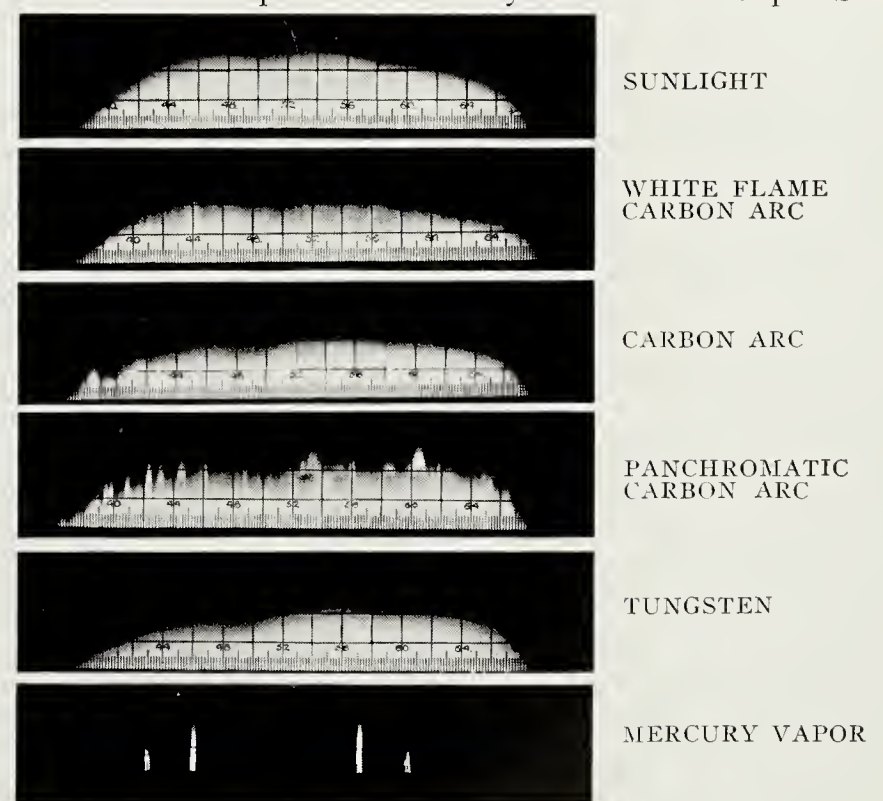


FIG. 34—Wedge spectrograms of light sources.

sitive Panchromatic Negative Film is obtainable from so-called "wedge spectrograms,"* and a number of these are shown in Figure 34.

*While useful for purposes of comparison, wedge spectrograms should not be regarded as representing the actual spectral sensitivity of any particular material.

Plane Crash Takes Another I. A. Cameraman

JAMES PERGOLA, member of Local 644, I.A.T.S.E., veteran cameraman of Pathe Newsreel, and William Pitt, Assignment Editor, were among the nineteen victims of the crash of the United Airlines "Mainliner" which occurred Sunday night, October 17th, near Evanston, Wyoming. Jimmy Pergola was on the ship enroute to the west coast to gather material for a safety picture in air transportation.

Both Pergola and Pitt were at the airport when they recalled they had not notified the Insurance Company regarding the flight, they phoned the Pathe office who immediately wired the Insurance Company for coverage as per their blanket contract for their employees in accordance with the Union agreement with Newsreel Producers which provides for \$10,000 Insurance for flights on company business.

James Pergola, 37, was employed by Pathe News, Inc., as a cameraman. He resides at Bronxville, New York, is married and has a child.

In 1918 he started his motion picture career as an assistant cameraman. In 1924 he became a first cameraman working on feature productions. Before entering newsreel work he was employed by the Metro studios and by the Paramount Studios in Long Island City. With the advent of sound films he joined Fox Movietone News. During his career as a newsreel photographer he covered the Republican convention in Kansas City in 1928; and he travelled with Al Smith during the democratic campaign that same year. He is credited with having photographed the first sound pictures of John D. Rockefeller.

Mr. Pergola joined Pathe News in 1930. In 1933 he spent 5 months filming the Cuban revolution. In 1932 and again 1936 he toured the United States during political campaigns with President Roosevelt.

On Saturday, October 23rd, Jimmy Pergola was buried in New York.

In a cold bitter wind and driving rainstorm, Jimmy was buried on a hill overlooking the Hudson Valley about twenty-five miles from New York City. Beside the family mourners representatives from all newsreels stood bareheaded while the last rites were performed over the casket. Among the editors were Charles Ford of Uni-

versal, Albert Richard of Paramount, Michael Clofine of Hearst, Edmund Reek of Movietone, Fred Ullman of Pathe.

Charley Downs officially represented Local 644, while the local members were there in profusion. Fordham, Dupont, Hutt, Brockhurst, O'Reilly, Donahue, Deek,



James Pergola

Edwards and others paid tribute to their friend. Orlando Lippert of Chicago represented Local 666.

Side by side friends and fellow cameramen paid a last tribute to the man with whom they worked in the revolution in Cuba, at the Detroit auto strikes, on the floods, and who died in the line of duty. They silently paid tribute while through their minds passed incidents, associating Jimmy, that may have happened several thousand miles from this dramatic spot.

Death had taken one from their ranks and had brought the realization home to this lot of carefree newsreelers who stood there, that even they are not exempt from this ultimate end, that they cannot escape, forever, the scythe of the Grim Reaper.

Technically Speaking —

Continued from Page 4

time, but avoid having the soup too much over the given temperature, as the contrast may turn out to be rather severe. If you are staying for several days in the same location, the entire amount of hypo can be mixed at one time, and kept in a tightly corked bottle. One other word of caution: Be sure you leave a note to the maid not to remove the pitchers until you check out, or you may have to tip another bell hop!

Bob Tavernier has designed and built a clever test box which can be taken right onto the job, and with which he can make a test at any time.

Briefly, his outfit consists of a box about fifteen inches high. Under a cover there is a seat for a Bell & Howell magazine, and through this the film to be tested goes directly into a compartment below. This compartment contains two thermos bottles, one for developer, the other for hypo. Access to this compartment is by means of a fabric gadget somewhat like a changing bag. All in all, it is a very handy affair, and one that should be extremely handy to have, especially if you must have tests on lo-

cation.

Several times we have had disputes with express company employees when shipping negative, especially in the smaller towns, or even in larger places where film is not often shipped except in the form of prints for theatres.

The Interstate Commerce Commission is tough about the shipment of inflammable film, and rightly so. However, there are definite points to observe which will make it easier.

Film to be shipped must be securely taped or sealed, in metal cans, and the cans must be in cardboard cartons, such as the ones in which it is shipped from the maker. The shipment should be carefully wrapped before taking it to the express office, since there is then less opportunity for argument. Make out the direction labels, and make sure that a yellow label is attached to the package. (The ICC rules demand this.) Also, when asked what the package contains, tell the clerk truthfully that it is film, but that it is *undeveloped* motion picture negative, and must be kept away from radium or it will be ruined.

You will usually find the express employees courteous and helpful, but there is occasionally a sourpuss who is trying to make a name for himself.



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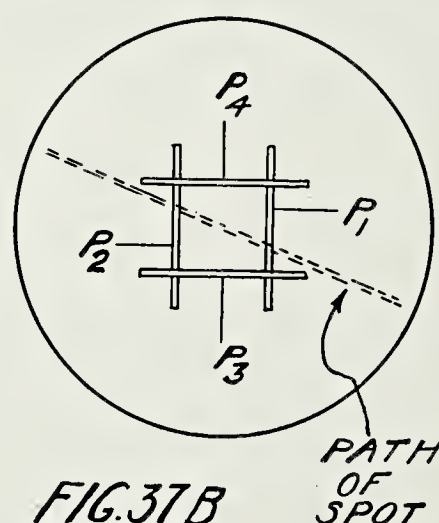
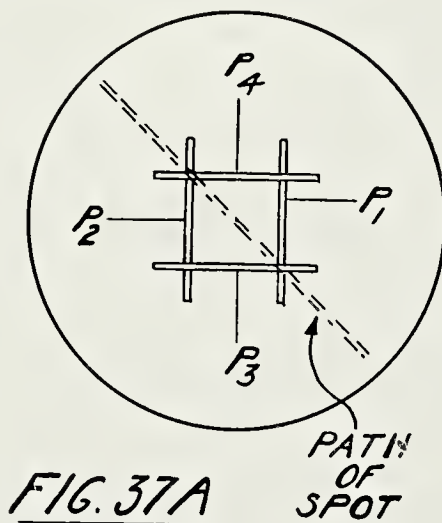
By C. P. MEEK

Section XXXVI—The Drawing of the Lines By Electrostatic Means

It has been found that the electronic beam will move in the direction of the positively-charged deflecting plate of the pair. If the potentials are reversed, the stream will move toward the opposite plate, since the charge will have been switched over. If the battery is regularly reversed, or if an alternating current is used, the beam will swing backward and forward across the screen, and as the reversals increase in rapidity, the path taken by the spot will appear as a *thin line*, since persistence of vision is again in evidence. In fact, the movement will be so rapid as to appear to be made up of no movement at all.

This line is much like that which was drawn by the passage of the first hole of the Nipkow disc across the front of the neon tube. To complete the comparison of performance there must be a whole series of lines, one below the other, across the entire screen at the end of the cathode-ray tube. The number of lines so drawn must be the same as that generated at the transmitting station.

To bring about this result the second pair of plates P_3 and P_4 of Figure 32 is placed in service. But notice that these are just above the other plates and at *right angles* to them. This indicates that if the first pair of plates pulled the beam across the screen from side to side, the second pair will pull it up or down. The combinations of their actions will result in a shift of the beam to various desired positions. This is accomplished by placing different amounts of potential across each of the two pairs. If the voltages are the same on each, the spot on the screen will move at a 45 degree angle as shown in Figure 37A, since one of the pairs of plates tries to pull it from left to right and the other downward. The result is a compromise. But if the voltage responsible for the horizontal movement is greater than that responsible for the vertical, the result is a gradual slope such as is shown in Figure 37B. The amount of this will depend on the ratio of the voltage applied to the two *pairs* of plates.



1. The rate of movement of the beam which produces the lines must be of the same velocity throughout, that is, there must be no gain or loss of speed during any part of its travel across the screen;
2. The lines must all be of the same length;
3. A definite and constant time interval must elapse between the end of one line and the start of the next;
4. An equally definite and often longer time interval must elapse between the end of the last line of a picture and the first line of the next;
5. Each succeeding line must be moved slightly down below the preceding one.

Section XXXVIII—The Devices Used to Accomplish These Conditions

Certain simple electrical circuits have been devised to make all these requirements possible of fulfillment. That shown in Figure 38A is fundamental to all of them. Here a condenser and a variable resistor are bridged across a high voltage source. In such a circuit, current will flow into the condenser until it is fully charged, or until the voltage across it reaches that of the charging source. The rate at which this occurs will depend on the value of the resistor, a high resistance causing a slow charge and vice versa. The condenser may thus be charged at any rate which may be desired. The curve of charging voltage is shown in the dotted line of Figure 38B. Notice that this is not uniform but that it tails off as the time interval increases, i.e., as the condenser accepts the charge. The voltage across the condenser will, of course, be the reverse of this, and will build up as time goes on. This is illustrated by the heavy line of the figure.

The dotted curve at the point "X" illustrates the amount of voltage being applied to the condenser at a definite instant. The charging current, according to Ohm's Law, will produce a drop of voltage across the resistance "R", and this will be proportional to the current. The curve of current is therefore the same as that of the voltage drop across the resistor. The *sum* of this drop and the voltage of the condenser as shown at "Cv" at this or any other instant will be equal to the potential of the charging source, and as the condenser becomes more and more charged, that is, as its voltage increases, the potential across the resistor will fall.

Now the lack of uniformity, or the mere fact that the graph shows a *curve* instead of a straight line in the charging of the condenser, indicates a disadvantage. The *curve* shows that if the combination shown in this circuit is connected across one of the pairs of deflecting plates to furnish voltage to draw the electronic stream from one side to the other, and so move the spot on the fluorescent screen, it will not fulfill the condition required in Item 1 above which reads: "The rate of movement of the beam

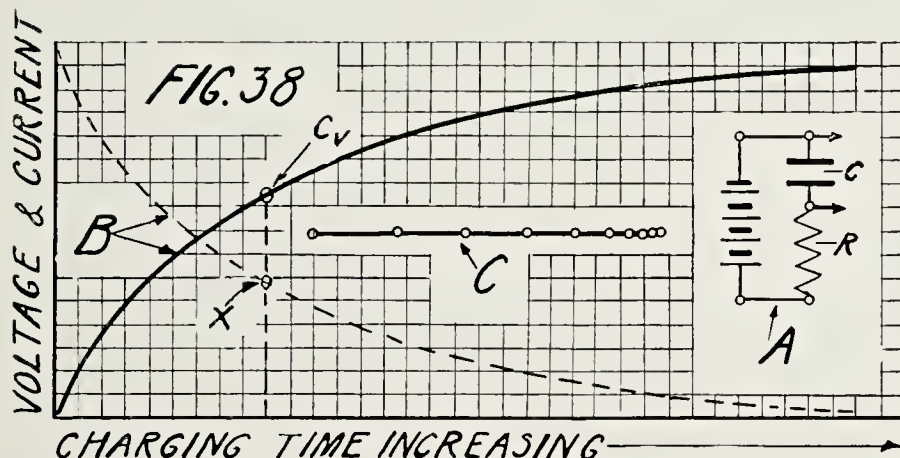
Section XXXVII—The Condition Which Must Be Met for Perfect Scanning

If a television picture in which the scanning is from left to right is received on a receiver equipped with a Nipkow disc, the holes are so spaced that the light passing through any one of them is directed just below that which shone through the previous hole. After the disc has finished one complete revolution, the first hole again passes before the light, and the illumination jumps from the lower right corner to the upper left. A similar effect must be obtained on the fluorescent screen of the cathode-ray tube.

For television purposes the cathode-ray tube must satisfy certain conditions, namely,

which produces the lines must be of the same velocity throughout."

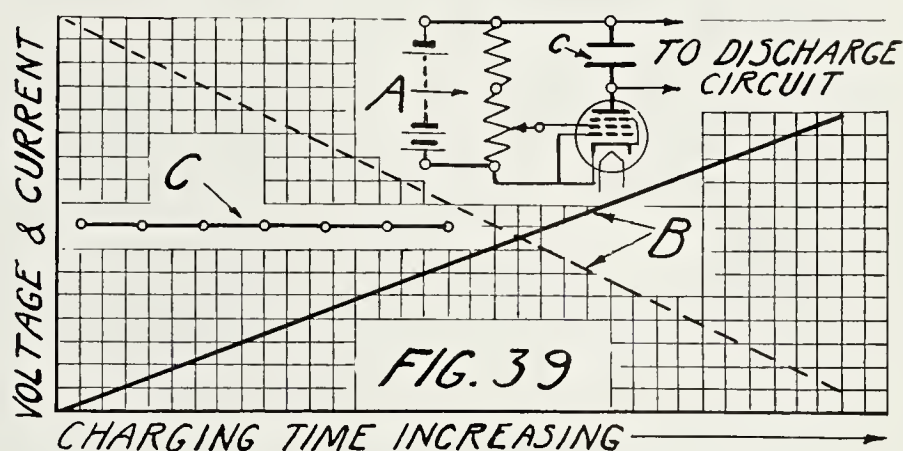
The heavy line of Figure 38B illustrates the curve of condenser voltage as it will reach the plates, and this shows a rapid rise at the start. Then it moves upward at a slower rate as time passes, and finally reaches a point where there is no vertical advance at all. For such a condition the movement of the spot as it crosses the screen of the cathode-ray tube would be as shown in Figure 38C in which the spaces between the circles indicate *equal intervals of time*. The amounts of movement per interval are not at all uniform, since the spot moves rapidly during the first periods, but gradually slows down, and then toward the end shows little or no movement.



Compare this with the desired condenser voltage curve which is shown in the heavy line of Figure 39B, and the desired movement of the spot in Figure 39C in which the spaces between the circles again represent *equal intervals of time*. Here the condenser charge is increasing the same amount for any given interval of time, and the movement of the spot is uniform since the circles are evenly spaced. This indicates equal *velocity* throughout the entire length of the line.

An improvement on the circuit of Figure 38 is obviously necessary, and a slightly more complicated arrangement has resulted in that shown in Figure 39A. Here a pentode radio tube is connected in place of the resistor. For the result desired, the pentode has an advantage over the ordinary three-element tube, this being that the *current* remains almost constant as the plate *voltage* is increased. This is illustrated in Figure 40. Notice that the useful portion of this curve is a straight line. Its behavior is

therefore much different to that of the resistor previously used, and this has an effect on the manner in which the condenser is charged.



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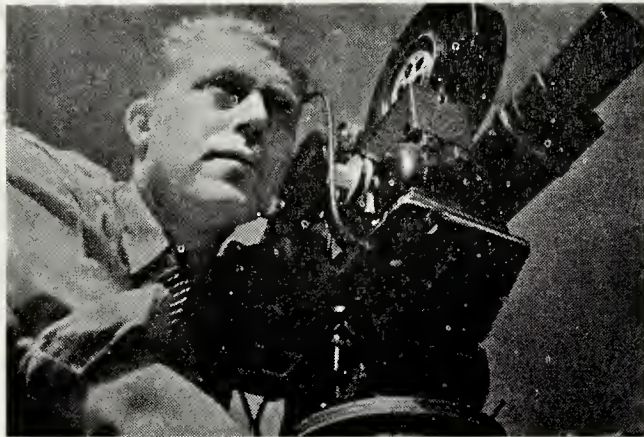
By RED FELBINGER

MARTIN BARNETT cuts in and out of the heavy Saturday night traffic on State Street. At the Chicago Theater his brakes screech as he dashes to the theater front and tosses the small film can he is bearing to the waiting elevator operator.

Barnett then saunters into the movie house and four minutes later he is thrilling with the rest of the audience to the newsreel flash of the afternoon football game out at Dyche Stadium. All of the spectacular plays and highlights of the game are in the story unreeling before Martin Barnett and that audience sitting there. It is eight-ten P. M. by Barnett's watch as he emerges from the Chicago Theater and greets the fuming police sergeant sitting atop his trusty steed, parked beside Barnett's very recently abandoned car in front of the theater. The Irish in the sergeant is up to the boiling point as Barnett runs to his car, but as the representative of the "city's finest" begins his speech Martin breaks in and says, "Okay, searg, I can play it on my drum! I know you promised me a ticket the next time I park here but I had to get the newsreel in for the early show and only had a few minutes to make it!" . . . and Barnett throws it into first and shoves off just in time to miss the "searg" screaming, . . . "and remember next week you get a ticket for sure!" . . . but Barnett has already rounded the corner and is on his way to the lab to report "audience reaction" to the coverage of the big game out at Dyche Stadium. Barnett is now safe on getting a parking ticket until next Saturday, when in all likelihood the indifferent said Mr. Barnett will again tread not too lightly upon the frazzled dignity of the limb of the law riding along State Street before the Chicago Theater, whose sole duty in life is to keep the Saturday night traffic unsnarled enough to damper the blast horns of impatient motorists. Mr. Barnett will undoubtedly play villain to the "searge" for quite a few more Saturdays to come. And the "searge" is only too aware of this. It's the football season and the "searge" is contemplating more trouble of the sort.

However, the sergeant's nemesis has a job to perform as well as the sergeant himself. Perhaps that's why the sergeant is not such a slouch on playing his part for Mr. Barnett every Saturday night, just as precisely as his Irish wit directs.

Mr. Martin Barnett is a Paramount newsreel cameraman and Mr. Barnett is winding up on his weekly characterization when he disappears from the sergeant's view as the car rounds the corner. Mr. Barnett has played his part well again, this Saturday, the same as he did a week ago. In all likelihood Mr. Barnett is going to repeat his performance just as well next Saturday. Mr. Barnett is seasoned in his part. He is a veteran trouser and when Mr. Barnett saw the football game flash before him when he entered the theater, Mr. Barnett knew that he had not missed on any of his cues for that day's performance. Therefore, when Mr. Barnett rounds the corner he heads for "Mickey's" and a few drinks—which are Mr. Barnett's well deserved "curtain



calls." True, Mr. Barnett heard applause in the theater after the football special ended, but being a hard boiled newsreeler, Martin Barnett knew the applause was for "dear old team" and the thrill the plays gave the audience. Barnett's real applause is to come after he downs a drink over at "Mickey's." Then the rest of the crew will come into the tavern and order up with the eternal, "Didja make it alright? . . . how did the print look? . . . did the continuity of

the plays run smoothly? . . . How'd the long run by Jefferson go over? . . . betcha it got a rise out of the audience . . . did the Searge finally nail you with a ticket??? . . ." and so on . . . and Martin Barnett and the rest of the crew will settle down to an ala-carte order of spaghetti and meat balls to wind up another long Saturday. The day's work will be at an end for the newsreel crew, outside of waiting another four or five hours for the laboratory to finish with the quantity run of prints, so that negatives may be shipped to New York for the national edition.

Wives will not be present at the repast. Newsreel wives know better than to expect to see husbands on Saturday nights during the football season. Those are all things that that audience, which sat next to Martin Barnett, did not realize, when they thrilled to the day's game as unreeling in the strip of celluloid Barnett tossed to the man at the door. There were a lot of other things that went into that piece of film that the audience was ignorant of that Mr. Barnett and his crew did that day, in order to flash a completed chronicle of the football game on the Chicago Theater screen in such rapid time.

Saturday begins early for a newsreel crew assigned to covering and releasing a special on football. The crew generally arrives at the stadium around ten A. M., long before the peanuts and hot-dogs are unloaded at the concession stands. Then a long trek with heavy camera and sound equipment up to the press-box roof, for a chilling session in windy blasts or often even a drenching in an afternoon's downpour.

A few universities have built shelters for the newsreel boys, notably Northwestern and Notre Dame. The late Knute Rockne was first in providing for the material comfort of newsreelers while covering games at Notre Dame stadium. Then Northwestern followed with a very modern sheltered newsreel stand. Others are now planning to give the newsreel lads a bit of shelter while recording an afternoon's game. However, no one has solved, to date, the gruelling grind of hauling the bulky newsreel equipment to the top of the stadium.

Newsreel crews set up on the fifty-yard line atop the football stadiums. This gives a vantage point to get an analytical close up, with telephoto lenses, of the action of the ball as it is carried throughout each individual play down on the field.

It is not by accident that the camera catches all the spectacular plays of a game. Luck plays no part in the obtaining of football scenes that thrill a theater audience.

Witness Mr. Barnett's activities from the time he sets

up his camera atop Dyche Stadium. Mr. Barnett carries enough film to last throughout the afternoon. By kick-off time Mr. Barnett and his sound engineer, Robbie Robertson, are ready for the whistle. Robbie Robertson plays an important part in this saga of the weekly argument between the "searg" and Mr. Barnett. Robertson is set before his amplifier, wearing his earphones and the mike smack before him. Robertson knows his football and the twenty-two players lined up out on that field waiting for the whistle. He knows every player's weak, as well as strong, points. He also knows the substitutes and can explain the plays of the various coaches and just about everything worth knowing about what is to come in sixty minutes of playing down on the field before him. Robertson is not only "catching noise" here at this football game. Robertson is also doing a job of "pre-syncing," meaning Robertson's brain is synchronized with Barnett's trigger finger on the camera and the action of the play down on the field. Robertson is going to call the action of the entire play from the time the ball goes into action until it is downed for the next play. Robertson's job is different from the radio announcer's. He cannot make corrections once he calls the play into the mike before him. He must call the player by name, or if it is a pass who passed to whom; how far the ball was carried and exactly what happened during each particular play. Robertson's voice is going right on Mr. Barnett's film while Barnett is picturing the play in his camera. This is Mr. Robertson's job of "pre-syncing" the negative. Time is saved here. The sound is being put on the film at the same time the picture is being made.

Barnett starts his camera on every play. That's why luck does not play any part in getting a complete history of all spectacular highlights that you are going to see in the theater tonight.

As Barnett shoots every play, Robertson's voice records on every play. Barnett checks his footage indicator closely after each play. When he nears the end of a roll he watches for an opportune time to change camera magazines—generally when a team takes time out.

At the half, band shots are made and Mr. Robertson puts on a line for an opening shot for the local. Then a messenger dashes with the first half to the lab. The camera crew continues to shoot the second half of the game until the final gun.

Here Mr. Barnett makes his first speed dash of the day. He takes the balance of the negative and "highballs" for the lab. By the time he arrives the first half is ready for the moviola and the job of editing begins. Approximately twenty-four hundred feet of exposed negative will run through the moviola. Out of this two hundred feet will go into the final edited story of the day's game. And here begins the nerve racking race with time to make the night shows of the theaters. The negative is run and re-run on the moviola. Then the rough cut. It is measuerd.

Three hundred feet! "Too long!"

The story is again edited. It must be cut down to two hundred feet in order to fit the racks in the developing room.

The theater managers are on the phones yelling for prints. Deadlines are established. If missed all rushing will be in vain. Finally the finished cut negative goes to

the printing room. Minutes now count. Mr. Barnett is in the printing room. He grabs the first print and tosses it to the racker in the developing room. Barnett is standing next to the developing tank begging the developer to snap it through. The developer is grumbling, "It'll take just so long anyhow for the stuff to come up!"

Barnett is working up to his final dash for the theater. The print must wash. It must be put on the drum and dried properly. A matter of minutes . . . but still must dry properly. A few water spots would ruin the print . . . and the chance of a showing that night. Minutes seem like hours now. The theater has a messenger waiting to take the print to the theater.

The print finally comes off the drum, properly dried. The messenger is ready. Five minutes to make the "loop." A long ride ahead through heavy Saturday night traffic. . .

. . . but Martin Barnett is a cameraman. He knows the print must reach the theater on time and only five minutes to go. . . Barnett brushes the messenger aside, jumps in his car and is off to the theater and the first show of the evening.

. . . so Barnett finally gets to "Mickey's." Barnett and the rest of the crew are eating their spaghetti and meat balls now . . . and they are discussing the "audience reaction" to the "special." . . . Barnett is getting his usual gentle "rib" about the much overdue parking ticket from the "searg" . . . but it matters not much to Mr. Barnett right now. . .

Mr. Martin Barnett, newsreel cameraman, has "time out" until next Saturday.

Dollina 35 mm. Candid Camera



Here is a beautiful instrument in design and capabilities. The Model II with Coupled Range Finder and takes standard 35 mm. film, with Compur Rapid shutter to 1/500th of a second, fitted with Xenar F:2.9 lens . . . \$57.50
Fitted with Xenon F:2 lens, net . . . \$71.00
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Fitter with Tessar F:2.8 lens . . . \$92.50
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Be sure to get the Bass Bargaingram of new and used camera values and start saving money.

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VI'S KRAX

A CERTAIN Newsreel Assistant Cameraman called the other day and asked to be excused from the meeting and when I asked him why he said "I'm getting married next month and I have to go and see the doctor tonight." Gee, the laws are getting tough on the boys.

Loren Tutell has been crowned Champion Coco Cola drinker of Local 666, "by this here Column."

"Doc" Gantz has gone Hollywood. He came into the office the other day looking like "Joseph" with the coat of many colors.

Just a city "gal" at heart, the mountains and scenery beautiful, but the GREATEST sight of all to me was the good "OLD CHICAGO SKYLINE" from our grand new outer drive at dusk.

Dave Savitt I bet must of have been a pretty picture in his shorts when he rushed down to the lobby of that swank hotel when he discovered he was in a \$28.00 per day room instead of \$3.00 per day room. "Was your face red Dave?"

One of our cameramen is going around in a daze because he ordered three special screws from Mitchell Camera Company for the legs of his tripod and they were sent to him "No Charge"—he says there must be some mistake.



Scene from Pioneer Pictures' romantic comedy, "Dancing Pirate," an RKO release. Designed in color by Robert Edmund Jones. Directed by Lloyd Corrigan. Photographed by William Skall.



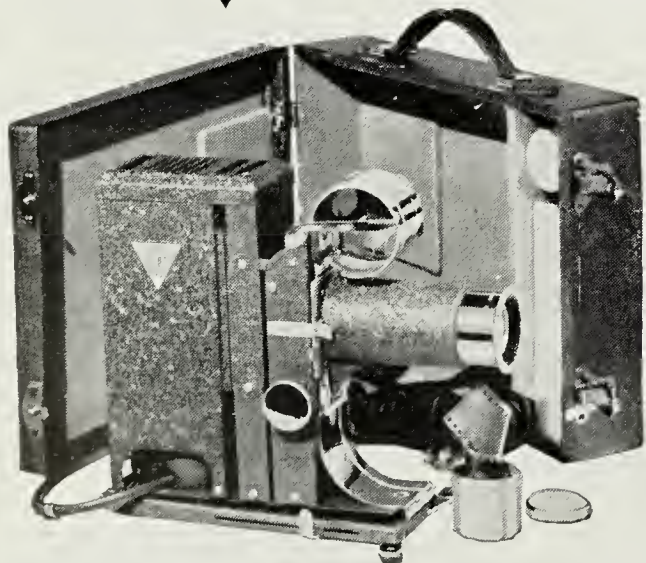
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Announcement of a new star in a production that never grows old has been received at this office from Associate Producer Webber Hall and is herewith reprinted, but first what this office would like to know is why the cameraman got no screen credit?

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HARRIS WEBBER HALL II
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OCTOBER 3, 1937 7:10 A. M.
To Be Followed By an Extended Run
at the Hall Theatre, 2021 Nelson Avenue
What the Critics Said of Harris Webber Hall II
When He Arrived on Location With the Director

Congratulations to the new baby boy in selecting such fine parents. Believe it or not, I was a baby once myself and I know just how he feels and oh yes, best wishes to the parents.
Lew Lehr.

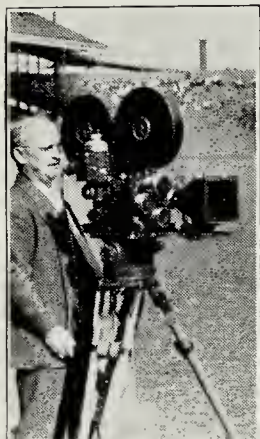
Many congratulations! And, so long until the next one. Lowell Thomas. Congratulations and best wishes on the new arrival. Another Hall scoop. Jack Haney. Congratulations to you and mamma on the arrival of a 1935 all American. Ed. Thorgersen.

Next Production
"WATCH FOR SPECIAL RELEASE DATE"
T. AND W. PRODUCTION

Congratulations to Mr. and Mrs. Webber Hall from Local 666.

Cinemabiography

JOHN C. RICHARDSON crashed the picture industry via Essanay laboratory shortly before the "Anay" was added to the "Ess."



John C. Richardson

Later with a producing organization headed by a druggist, a "delicatessenier," a paper-hanger, a mechanic and trusting stockholders. The pictures were colossal.

Came the dawn—I mean the War. Signal Corps and France via Columbia University, bilge water, rats and "M.P.'s" (all our sight-seeing was done under their close surveillance).

Returned to "Civies" in France—more sightseeing minus "M.P.'s."

Home and into 28 m.m. home movies experiment at Buffalo; news-reel in spare time.

Thence to the Jam Handy of post-War days—Watterson Rothacker.

Boom days with manufacturer of movie studio and automatic hand cameras.

President Hoover's swan dive with an anchor.

Another dawn and a Mitchell "slow motion" form analysis of Olympic stars; travels with the floods; attends labor upheavals in motors and steel; observes the trend of new cars; and records performances of the Yankees in their latest baseball triumph.

A Letter

By J. Roy Hess

Dear Folks:

Through summer long, with its hot days,

You've missed me in a dozen ways.

I was a comfort to you when

You had to use a fountain pen,

Or pencil, lighter, check book, and

To hold your smokes, you found me grand.

I've missed you too, a lot, you see,

For you were always near to me.

Again, about you I will form

A circle snug, to keep you warm.

My summer rest, I fear has made

Me to appear a lighter shade.

You'll find my service just the best,

Back on the job,

Yours truly,

Vest.

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Rates 50 cents per line—minimum charge one dollar per insertion. For Sale—For Rent—Wanted—For Exchange—Etc.

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FOR SALE—Bell & Howell field type tripod, bargain. Apply Local 666.

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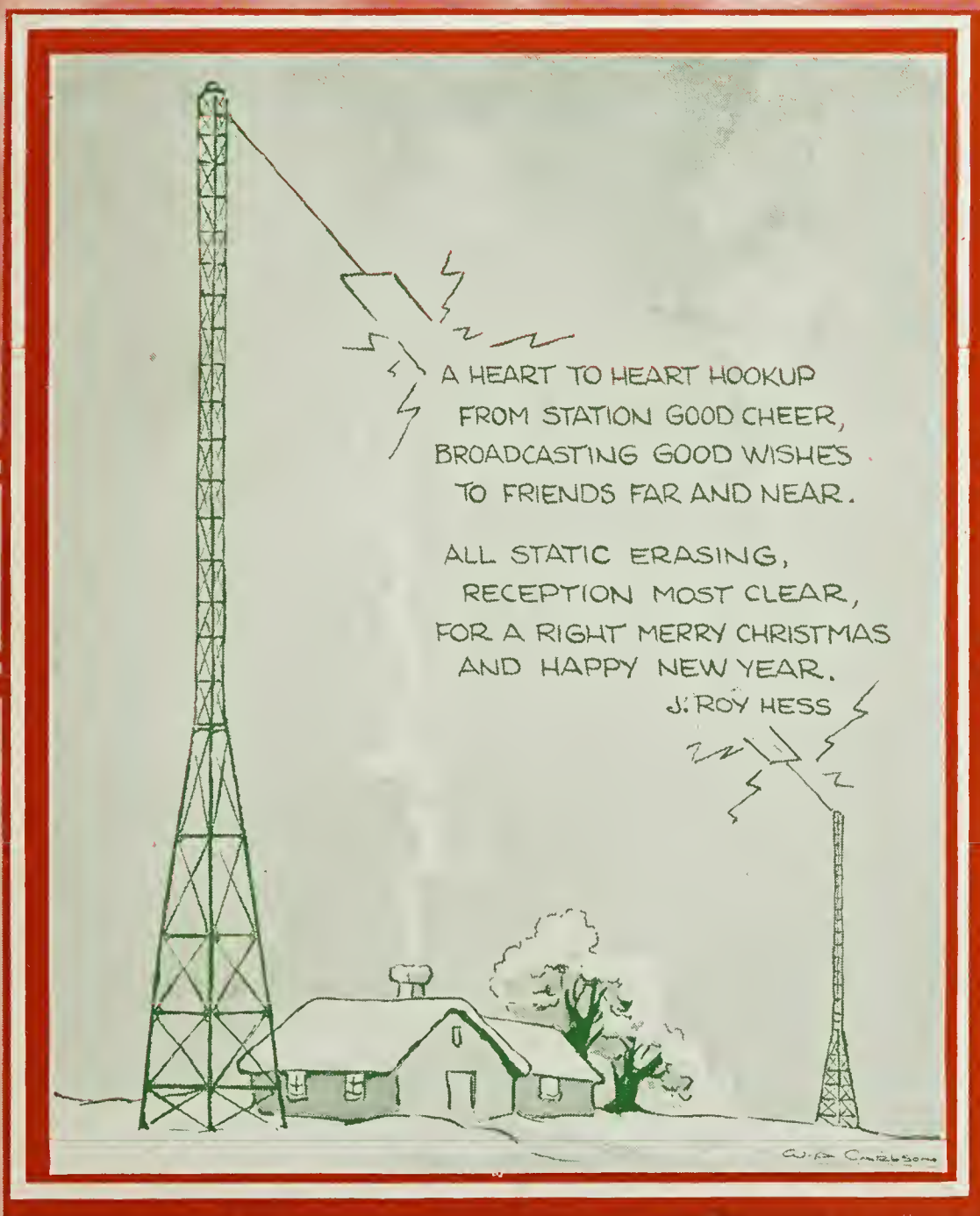
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DECEMBER, 1937

VOL. 3

No. 12

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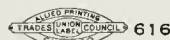
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Subscription Rates—U. S. and Canada, \$2.00 per year, 25c per copy.



By W. H. S.

AS we approach Christmas and the turn of another year we are grateful for the marked improvement in the employment situation over previous years for during 1937 approximately sixty-five per cent of our members were permanently employed and seventeen per cent received approximately twenty-six weeks' work. Contracts were signed this fall with all our leading Industrial Producers which provided for increases in the wage scales of ten to twenty-five per cent. There were no deaths in the organization this year and sickness and accidents were at a minimum. Despite the talk of business recession and a new depression we are confident that the New Year will bring a continuance of good conditions and jobs for our members.

Our organization has not held a get together affair since 1931 for the reason there was not much to get together and rejoice over, however, this year showed so much improvement that the membership at the last General Meeting decided to hold a dinner-dance, where as many as can come may get together and enjoy a good time. The affair will be held on Saturday night, February 5th, 1938, at the Stevens Hotel, Chicago, at 9 o'clock p. m. Tickets are on sale now and are priced at \$3.50 each person. All members in the Chicago District have signified their intention of taking at least two tickets. Seventeen members in the Detroit District have pledged themselves to attend with their wives or friends.

The Executive Board of your Local would like to see as many of our out-of-town members attend this reunion as can possibly get away.

You are assured a splendid time in a great hotel and a lovely ballroom. There will be a very fine orchestra and many of our friends in the theatrical, radio and motion picture profession will be there to entertain you. Motion pictures (sound) will be made during the dancing and at the tables. These will be projected before you leave. Invite your friends to come with you. Send in for table reservations immediately.

In former years we gave dinner-dances and lost considerable money on them. This year we are printing a program which will contain advertising with just enough pages to assure a good program of entertainment plus a good dinner and no loss to the Local.

Make up your mind to attend this get together affair and meet your old friends in the profession and meet a host of new friends. Remember the date, February 5th (Saturday), Stevens Hotel, Chicago.



1938

DINNER DANCE

for

All Members of
 I. A. T. S. E. LOCAL 666
 and Their Friends

Will Be Held
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 On Saturday, February 5th
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Good Dinner

Fine Orchestra

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Floor Show

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Gifts for the Ladies

Good Time for All

Meet Old Friends

Make New Friends

Plan to Come



Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

PERHAPS the most important news to cameramen is the new Agfa high speed film recently introduced to the trade. This film is available in two speeds: the so-called number 153, and the "newsreel" emulsion.

Both types are available in 35 mm. form, and the type 153 is available in Leica, Argus or Contax loads and in bulk. I do not know whether the newsreel type is stocked for candid cameras or not. However, the newsreel emulsion can be had in cut film of all sizes.

All claims for the type 153 film have been fully proved by tests by the writer, but I have had no chance to try out the other type. The 153 emulsion is definitely three times as fast as Super-X, while the newsreel stock is four times as sensitive.

Recently on a job in Detroit, in a dark and gloomy foundry, we lighted our foreground normally, and made the shot at $f/2.3$. A hand test developed that night showed the most remarkable carrying power we have ever seen. The foreground was not over-exposed, but the film carried well back into the shadows, clear to the walls, giving an amazing effect of light coverage.

These two emulsions are extremely sensitive to light of all colors. They absolutely must not be exposed to even the faintest green light during development. A friend recently, developing cut film in a tank, after *eleven* minutes, turned on a very faint green safelight. Every film in the tank was fogged! Both emulsions must be developed at least 20% longer than straight panchromatic negative, and 25% more is none too long.

A week or so ago, in the Book-Casino in Detroit, during "candid camera" night, I exposed a roll of 153 with an Argus.

My Weston meter gave a reading of $1/20$ th second at $f/2.8$ with the photofloods used to light up the room. I was quite skeptical of obtaining any results, but shot away and covered the floor show and the candid camera fiends all around me. When the film was developed in Champin's No. 15 developer, I got a tremendous kick out of the negative, because it absolutely carried back into the corners, and brought out a wealth of detail. And it was shot wide open ($f/4.5$) at $1/25$ th second.

I had the opportunity recently of examining and seeing in operation one of the new Fearless wild motors for the NC Mitchell. This motor overcomes the trouble previously experienced with wild motors on these cameras, since it has ample torque to handle this camera even when cold. You know the NC has plain bearings, and we have had trouble in the past with the Mitchell motor as supplied for these cameras failing to carry up to speed in cool weather.

The new motor is mounted on a side plate similar to the sync. motor, and is in a horizontal position. This places the speed control dial to the rear, where it is easily seen and readily reached. The reversing switch is inside a safety cover. This motor runs on 110 volts A.C. or D.C. Another nice feature is that there is a built-in buckle trip switch—something new in a wild motor for these cameras. Other motors we have seen have had external wiring to connect them with the switch in the camera. All in all, it is a very neat and well worked out job.

Most cameramen, I think, are aware that the dead black lacquer inside of cameras and lens mounts and on various other camera parts is there for a purpose—mainly, that of killing unwanted reflections. It's a good idea to open up the old camera once in a while and examine it for worn spots in the black finish. It isn't much of a job to apply this lacquer, as it can be painted on with a small brush or sprayed on. Personally, I think a neater job can be had by spraying, and I use one of those little spray outfits that are furnished to handle DuPont Touch-up enamel. These operate from a spare tire, and do a really excellent job.

You can mix your own dead black enamel, but it is hard to get it finely enough ground to spray. For that reason I prefer to use Kodalac No. 4 Brush, as supplied by the Eastman Kodak people. It is the same finish they themselves use in their cameras and such, and it dries in a matter of a few minutes, leaving a fine, lusterless surface.

In order to get good results with this lacquer—or any other, for that matter—you must have the surface quite clean and free from oil or grease. A good high grade of gasoline on a lintless cloth will remove all forms of grease. Do not use gasoline containing anti-knock compounds. The reason I said to use a high grade gasoline is that some of the cheap gas leaves a sticky white deposit on drying,

(Turn to Page Six)

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ORIENTAL ACCIDENTS

By HOWARD WINNER, Staff Cameraman—Universal Newsreel

TWO planes droned overhead—Chinese Warbirds—while thousands of natives and foreigners crowded the Bund and Garden Bridge to watch them bomb the Japanese Flagship "Idzuma" which lay like a phantom in the middle of the Whangpoo River. Not literally invisible, but leading a charmed life while shells, bombs, and electrically operated mines explode ineffectively all around.

It was a warm, summer afternoon, but a stiff breeze was sweeping the riverfront while eight thousand feet above the bomb-laden pair were bucking a strong headwind. As the planes neared the Cathay Hotel at the corner of Nanking Road and the Bund, the Idzuma having given the signal, opened fire with her anti-aircraft guns simultaneously with four other Japanese warships. The chattering of the natives increased to frenzied screams as the anti-aircraft shrapnel began to shower on the Bund, and pandemonium reigned as they scurried for cover in doorways and under sheds.

Then something happened—one of the warbirds released two 'eggs' which resembled two inkspots against the blue sky, after a few brief seconds there was a sickening, whining screech followed by a deafening roar—Hell had broken loose. The Palace and Cathay Hotels had been struck and the street was transformed into a mass of human wreckage. Hundreds lay dead, lucky enough to have been killed instantly, while hundreds more, less fortunate, struggled to rise to their feet (if they had any), or crawl away, some feebly beckoning for help—the sight was hideous.

Four blocks away a duplicate tragedy took place a few minutes later, a huge bomb landed in the middle of the intersection of Avenue Edward VII and Yu Ya Ching Road, also slaughtering thousands.

The following morning the Chinese government issued a statement claiming the tragedies were accidents caused by high winds, injured pilots and disabled equipment.

"Bloody Saturday," the newspapers called it—"and nothing like this would ever happen again, it was just an accident."—Two of the busiest spots in the International Settlement had been hit directly. There was still another intersection that was thronged by the noonday thousands, the Department store center on Nanking Road. In fact, it was the following Saturday, George Krainukov, our Shanghai staff man and I were driving past the spot remarking at the time about the throngs and what an opportunity it would be for us to set up and shoot a few scenes to show how the streets of Shanghai appeared during the present 'struggle.' We drove on to the Metropole Hotel to grab a bite to eat, but our hunger disappeared suddenly when we were shaken by another terrific explosion. Driving back to the department stores our eyes gazed upon another sight that was actually too gruesome to photograph and almost impossible to describe. A missile of some kind, bomb or shell, had entered the second floor

of the Sincere Company store and demolished the entire section of the building along with damage to the Wing On Company Store across the street. It was another scene

of human misery, hundreds of non-combatant natives calmly minding their own business and struggling to earn a few coppers with which to buy a bowl of rice, were suddenly and without warning snuffed out either completely or inhumanly maimed.

Was this another "accident"? No one knows, the Chinese blame the Japanese, and the Japanese insisted that the fault lay with the Chinese who had already established a reputation for errors. Never-the-less the

damage had been done.

We shot a few hundred feet of film on this hellish scene, fully expecting that it could never be used in a newsreel, but Universal released most of it and the critics did acclaim it as unequalled peace propaganda, that it is better for people to see such scenes on the screen than to actually witness its equal on their own streets.

Another incident that might have developed into another 'accident' involved all the newsreel men. During the first few weeks of the war we had experienced some difficulty in obtaining proper credentials for freely circulating through the lines. The Japanese, however, were exceptionally cordial and cooperative, issuing passports to all photographers within a few days after we had submitted proof of our connections. On the contrary, the Chinese officials did not trust anyone connected with the newsreels, despite the fact that they were being given the benefit of the doubt in all newsreel releases, and continually being placed in a heroic light. They would not issue passes, but instead, insisted that we apply to their headquarters any time we wished to visit the Chinese lines for the purpose of shooting newsreel pictures and they would supply us an escort who would act as guide and also as censor. On this particular morning we were to be escorted to the Chinese front-lines in Chapei. Three automobiles were supplied by the Chinese, having first been properly camouflaged with brown paint and tree limbs. The party consisted of General Sun, Commander of the Chinese forces in this area, two other officers, Art Menken, Paramount Ace; Eric Mayell, Movietone veteran; "Newsreel" Wong, News of the Day grinder; George Krainukov, my colleague and myself. We drove a few miles back into the Chapei area, and finally came to a halt near a corn-field where a few 3-inch guns were planted and perfectly camouflaged, machine-guns were scattered about in trenches peering at us suspiciously despite the fact that we were accompanied by their own general. We were invited to shoot whatever scenes we wanted and then herded back into the cars for the return trip.

Evidently our cars were kicking up too much dust and attracted the attention of a Japanese bomber who had been actively engaged in 'laying eggs' on Chinese troops attempt-

(Turn to Page Sixteen)



Screenings, Thither and Yon

By ALMA MAE BUTLER

WELL; the witches and ticktacks are back on the shelf; the turkey hash finally made that Great Divide; just one more installment of the income tax, then—the next thing you know, there's Christmas. And it won't be long now! Holidays just come and go and the poorhouse gets closer and closer. But, Christmas! Who wouldn't skimp on the last scuttle of coal, and blow on his frozen joints, that the chute may be nice and toasty when Chris Kringle comes sneaking down?

This Christmas business is a great, little racket!

The Pilgrims ought to get some of the credit for starting America's Yuletide spirit. The purpose for the feast of Thanksgiving is to drum up our sluggish benevolence. See, look how these gals put off chucking their boy friends until after the holiday maneuvers; and janitors turn on more heat; wives take to kissing their husbands, and even the cook in the kitchen is on speaking terms again with her mistress. Thirty whole days to round up stray friends and draw them back into the fold. You can soon trade them in after Christmas if they don't come across with the dole.

This holiday time certainly gives us a chance to make a clean sweep of things; that outlay of worthless gee-gaws that the maid never seems to bust—prizes from all those marathons; bunco and bank night stuff! With a frilling or two of tissue they'll do a little to spread some cheer. Naturally, the gossips will get busy, but just carry your head as before. No one will deny it's a right, smart thing to thwart the wolf at that door. So, Christmas holds forth great promise and embarrassments are none too few. Jim Jones gets the rose jar his wife donated to the church bazaar last June, but you're ahead the conch shell from the parlor of his Aunt Sue. My brother, Johnie, came in one Christmas with a gift from his Sunday School teacher. What actually should have been a loaf of bread was simply a smoking set. Johnie was ten.

But there's always some thrill to shopping; dragging little Junior about by the hand through the baseball bats in the basement to tenth floor rubber bands. A day of snatching and grabbing. Junior yelps with all his might. Then home, too battered and exhausted to care how you came out in the fight. And there in your only bundle is the flannelette some tired, old lady had bought, while the gorgeous kimona you got for yourself to revive that spark in dear John, is draped on the hulk of some big, fat dame who's chuckling; the Son of a Gun! The next day it's the same thing again. You may come home with John's ring—then live in fear of the future because you know it'll turn green in the Spring.

The Yule trees aren't as grand as they used to be. Remember the ones that bent over at the ceiling; and the shining angel we placed on top to witness our tiptoe stealing? And the strings of cranberries and pink popcorn, and real candles that blinked with glee when Ma shoved back the folding doors so everyone could see?

Kids don't believe in old Santa today. I feel a bit sorry, somehow. They know it's that wielder of the hairbrush the moment he creaks o'er the floor. But they've played goat all summer with the whiskers out of the linen drawer. Little wonder the lost illusions we cherished in the days of yore.

And with a Santa in every window, every corner, on every hand—well; who wants to believe that good old

Saint Nick was created on the chain-store plan?

Christmas Day comes as usual; but Junior must stay in bed. Everybody's running for bromo 'cause Ma and Pa have heads. The radio lets out wild static. The house is a holy sight—then just as sweet music comes over the waves, Pa yells—"Hey; Nix on that Silent Night!"

I'm not the one to be complainin'. I've seen Christmas again and again. And whichever the way you take it, it always means:

"Peace on Earth, Good Will Toward Men!"

TECHNICALLY SPEAKING

(Continued from Page Four)

which is more trouble to remove than the original grease.

In purchasing new filters for your outfit, why not consider the 3-inch square glasses, rather than the more commonly used 2-inch filters? The reason for this is that, with the added popularity of wide aperture, long focus lenses, such as the 6-inch, f/2.3 type, you will find that the 2-inch square filters are too small. The cost over the smaller squares is not very great, and you will find the added investment a good one. Besides, who knows when some outfit like Taylor-Hobson-Cooke or Zeiss will come out with a super-ultra lens of two or three inch focus working at an aperture of around f/0.25 or something! Then where will you be with a 2-inch filter? I ask you, brother.

So now, with 1937 drawing to a close, this column and myself wish to thank you, one and all, and to wish you, sincerely and from the bottom of my heart, a Merry Christmas and a Happy and Prospeous New Year!



Scene from Pioneer Pictures' romantic comedy, "Dancing Pirate," an RKO release. Designed in color by Robert Edmund Jones. Directed by Lloyd Corrigan. Photographed by William Skall.



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1937 Passes Before Newsreel Lenses!

By RED FELBINGER

JANUARY:

The newsreel lads from 666 roll into Flint, Mich., and establish Flint as the leading national date line as the sit-down epidemic reaches a new high in the automotive industry . . . rumors . . . threats . . . and riots . . . all are recorded by the 666 lensers . . . as a new giant labor movement spreads . . . the news snoopers cover Flint until the end of the month when turbulent flood waters start rolling down the Ohio River.

FEBRUARY:

The crest of the big flood moves down the Ohio valley . . . and with it a complete army of 666 news boys . . . Cincinnati . . . Louisville . . . Evansville . . . Cairo and Memphis . . . the ravaging waters do millions in damage and make many homeless but the lens lads ride the crest and record a graphic picture of old man River on the loose . . . when the flood waters subside, Waukegan, Ill., takes the spotlight and the boys brave chill dawn winds to record another sit-down strike being ended by force . . . only to be called to Detroit where the sit-down technique goes on and on.

MARCH:

Brings a respite for the tired strike dog-watch from 666 and the boys welcome routine assignments . . . cold waves . . . fires . . . only to get in on the Chicago cab strike at the end of the month . . . Strikes are again back on the front page . . . and the tripod jugglers are back to sleepless nights.

APRIL:

Ushers in the first gentle weather of Spring in the middle west . . . likewise it brings out the Notre Dame football team for it's first Spring training campaign . . . an annual newsreel chestnut . . . the boys trek to Bonne Terre, Mo., to record another child wonder . . . and get their first annual glimpse of the St. Louis Zoo . . . which probably contributes more animal stories to the newsreels than all the other zoos in the country combined . . . thanks to publicity appreciative George Vierheller, head of the St. Louis Zoo . . . March also ushers in the opening baseball games and the lensers follow the 1st home run of the season through twelve inch lenses and know Spring is here. . . .

MAY:

Takes the boys to the winter quarters of the circuses at Peru and Rochester, Indiana . . . en route to the annual headache . . . The Kentucky Derby . . . which means sleeping in crowded sample rooms . . . much advance work . . . and finally the big race . . . and no camera jams . . . and the realization that the job is probably secure until next Kentucky Derby . . . then the big fight for the heavyweight championship of the world loomed on the 666 horizon . . . and the newsreel gang trekked to the Brown Bomber's Kenosha camp for some swell Harlem baked ham . . . followed by a few days respite in the quiet of Braddock's camp at New Buffalo, Michigan . . . then to have the month end with the usual Decoration Day 500 mile auto grind at Indianapolis.

JUNE:

Opened with a bang as Lippert made the headlines with his famous Decoration Day massacre story at South Chicago . . . probably the big newsreel story of the year . . . It also placed all the 666 lads back on the strike front as the big steel strike reached it's climax . . . As the strike fight ended the boys found a little respite in another big scrap . . . and a new world champion . . . Joe Louis . . . was crowned at Comiskey Park at Chicago.

JULY:

The Fourth was duly celebrated by the gang atop the sweltering press box roof at Marquette University, Milwaukee, covering the national A. A. U. track meet . . . and sports took the boys through the balance of a hot month . . . with a big golf meet at Medinah, Ill., . . . and the Saturday handicaps at Arlington track.

AUGUST:

Started the boys out on a kidnap story that developed into a hoax . . . the Horst case . . . but the story stayed on the front pages long enough to have the newsreel lads cover it . . . then back to sports events . . . outboard races at Chicago . . . a log-rolling contest in Michigan . . . and

SEPTEMBER:

And the big Gold Cup Regatta at Detroit . . . and Jimmie Pergola's final appearance on the 666 front . . . football training stories . . .

(Turn to Page Nine)



"Art Reeves"

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THE ELEMENTS OF TELEVISION

By C. P. MEEK

WITH the pentode in the circuit, the condenser charge rises and the potential across the tube falls just as it did across the resistor. But although the voltage across the tube is reduced, the current flow is not affected, and the condenser is charged at a constant, uniform rate. The curve of potential is now a straight line such as that shown in the desired heavy curve of Figure 39B. A variation of the impedance of the pentode by alteration of the voltage on its screen will cause the condenser to charge at any desired rate.

If now the output of this combination is connected to the pair of deflecting plates responsible for the horizontal passage of the beam, the condition of uniform and constant movement will be fulfilled since for any given interval of time the amount of increase of condenser voltage is the same. (See the heavy line of Figure 39B.) As the condenser voltage rises, the deflecting plates will receive a *uniform* charge, and the spot will be moved across the fluorescent material at the constant rate indicated in Figure 39C. The spot will cover equal distances in equal amounts of time, and the condition desired in Item 1 of the requirements will be satisfied.

Once the beam has reached the end of the first line, it must return to its starting point even faster than it was drawn across. It was necessary to *draw* the beam across, and if the potential on the plate toward which it was drawn remains, it will continue to be attracted to it. But since it is being forcibly held to the deflecting plate, it should be possible to suddenly cause it to drop back to its original starting place by removing the influence which holds it. This trigger action must be as fast as possible and is formed by momentarily short-circuiting the charged

condenser so as to cause the voltage which is being furnished to the plates to fall to zero.

However, if the pentode and its associated circuits are left alive, the condenser will charge again, another gradually increasing voltage will reach the plates, the electronic stream will be gradually attracted toward the positively-charged plate, and the spot will once more travel across the fluorescent screen. This second line will be of the same length as the first since the necessary time for the condenser to charge will not change. The condenser will always

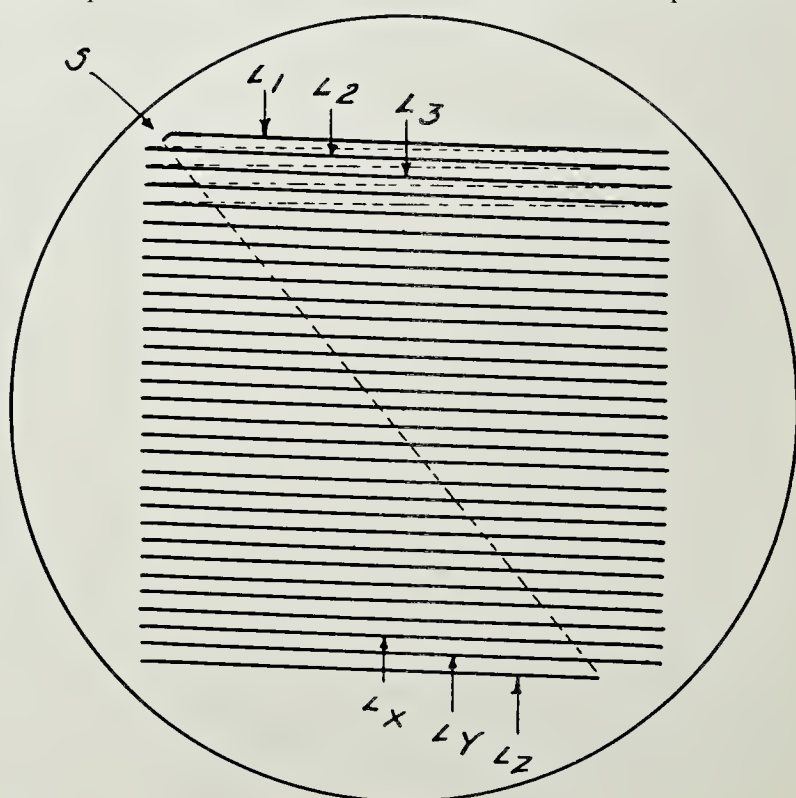
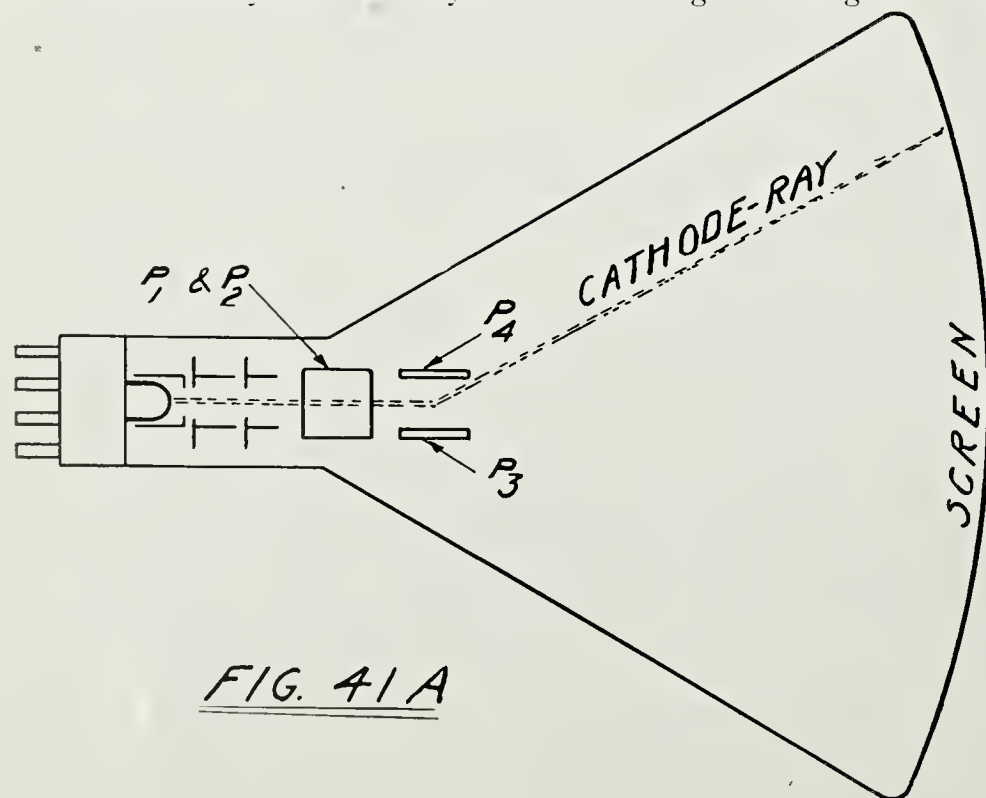
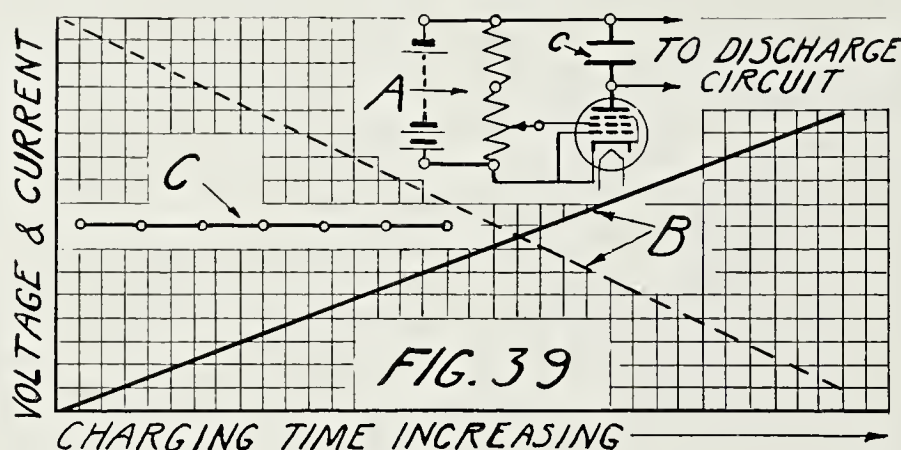
feed the same amount of voltage to the deflecting plates and this voltage will move the spot a certain definite distance across the screen. Condition 2 which states that the lines must all be of the same length will be fulfilled.

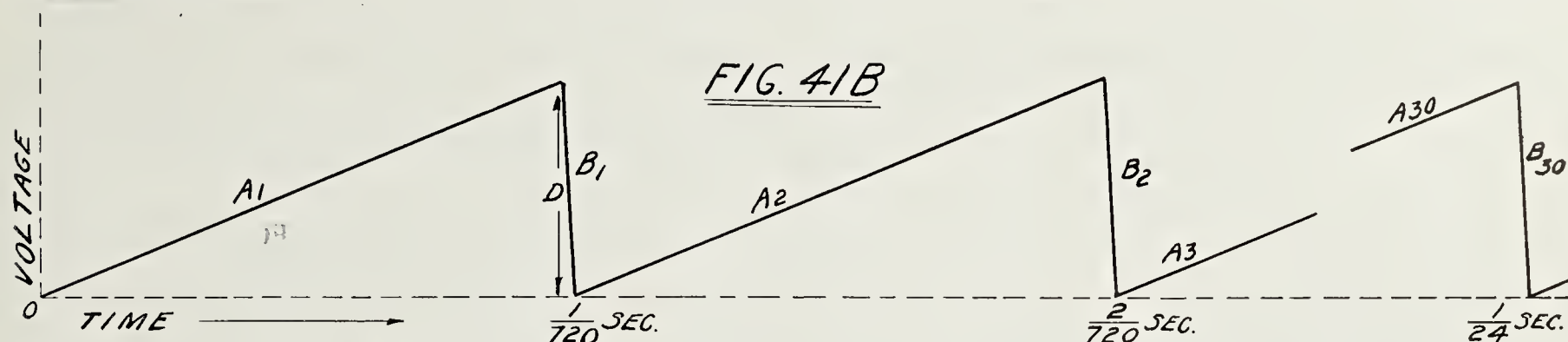
Moreover, the condenser will take an equally definite but much smaller interval of time to discharge, and this will not vary. In consequence, Condition 3 of the requirements which reads: "A definite and constant time interval must elapse between the end of one line and the start of the next" will be met.

Section XXXIX—The Saw-Tooth Waveform and Its Action

The wave forms of the voltages involved in the charging and discharging of the condensers which furnish the motivating forces to the deflecting plates are of vital importance. An analysis of these so-called "saw-tooth" oscillations may show more clearly the uniform influence of the voltages on the electronic stream as its collision with the fluorescent material of the screen forms the lines of the television picture.

Figure 41B illustrates a rapid saw-tooth waveform in which the portions $A_1, A_2, \dots, A_{30}$ are the equivalents





of the desired charging curve of Figure 39B. These voltages charge the condenser which furnishes the potentials to the deflecting plates P_1 and P_2 of Figure 41A to draw the cathode-ray from left to right across the screen. Similarly, $B_1, B_2 \dots B_{30}$ represent the discharges of the condenser. Each period of charge and discharge occupies an equal time interval, and follows the previous period instantly.

The object of the movement produced by the influence of the waveforms of Figures 41B and 41C is to duplicate the scanning movement at the transmitter, that is, to produce a group of scanning lines $L_1, L_2, L_3 \dots L_z$ of Figure 41A the same as those generated at the point of origin.

To simplify matters, imagine that each picture is square and of 30 lines drawn from left to right, and that the ray has a natural tendency to fall into the upper left hand corner "S" of the raster which represents the unmodulated screen at the end of the cathode-ray tube. Let the condenser which furnishes voltage to the deflecting plates P_1 and P_2 responsible for the drawing of the horizontal lines from left to right be known as the *line* condenser, and that responsible for the placement of the lines one below the other as the *picture* condenser.

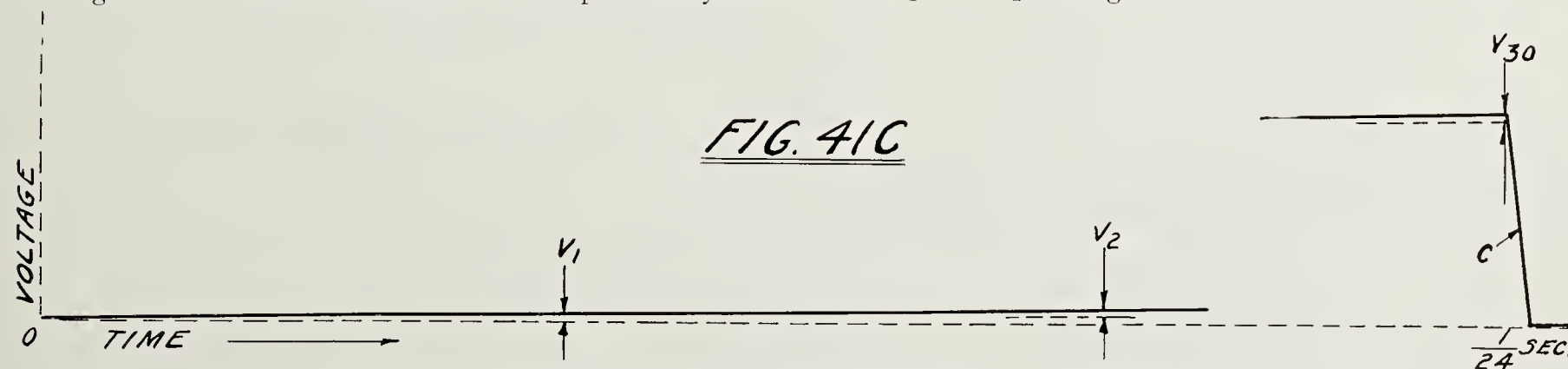
The application of the steadily increasing voltage A_1 of Figure 41B to the plates P_1 and P_2 of Figure 41A will cause the beam to bend and the spot to move gradually across the screen from left to right to the end of the line L_1 of Figure 41A. The time base is so arranged that the condenser reaches its proper charge at this instant, and is at once discharged as indicated at B_1 of Figure 41B. The spot will fly back to the starting margin as indicated by the dotted line on the raster. As the condenser commences the recharge A_2 of Figure 41B, the second line L_2 of Figure 41A will be started.

But a downward movement was going on during the drawing of the first line. This was accomplished by an-

other slowly increasing voltage of Figure 41C on the other pair of deflecting plates P_3 and P_4 of Figure 41A. The condenser involved in this movement charges at a much slower rate—only once for each *picture*, that is, once for each 30 lines. In Figure 41C, which represents another saw-tooth wave-form, each small vertical distance $V_1, V_2 \dots V_{30}$ indicates the amount of voltage built up on the "picture" condenser responsible for the vertical movement during the drawing of *one* line. For the square 30-line picture being considered, each of these voltages is of an amplitude only 1/30th the full voltage of the other condenser responsible for the drawing of the individual lines, or V_1 of Figure 41C is equal to 1/30th of the voltage "D" of Figure 41B.

Both condensers commenced their charge at the same instant. The small portion of the *picture* condenser's charge exerted its influence on the deflecting plates P_3 and P_4 of Figure 41A to draw the beam downward on a slight *slant* while it was being moved across the screen from left to right. The *entire* charge of the picture condenser is about equal to that of the condenser responsible for the line movement, and will eventually influence the beam in the downward direction approximately the same amount as that which causes the line deflecting plates P_1 and P_2 to draw the spot the full distance across the screen. But since the total charge, and hence the total amount of *vertical* travel, is distributed among the 30 lines of the picture, the amount of slant per line is quite small.

The discharge of the condenser which is responsible for the *line* scanning will cause the beam to drop back to the left side of the frame in a very small interval of time compared with that taken to drag it across the screen. So rapid is the return that the passage of the spot is invisible, and since it is so rapid, it may be considered as moving in an *unslanted* line as shown by the dotted line between the lines L_1 and L_2 of Figure 41A.



1937 PASSES BEFORE NEWSREEL LENSES!

(Continued from Page Seven)

OCTOBER:

... and football ... the weekly get togethers on press box roofs ... the miles of film recorded ... good weather ... bad weather ... big crowds ... long hauls with the equipment ...

NOVEMBER:

Football still on the throne ... the big intersectional

games now ... the pride of getting all the spectacular plays ... Saturdays well spent ... and the rest of the week taking in the usual feature stories ...

DECEMBER:

Officially rolls in with the big International Live Stock Show at Chicago and quickly rolls into the holidays and the Christmas Spirit becomes rampant ... as a tired gang of 666 lensers settle down to a quiet Christmas ...

Christmas Greetings

*And Best Wishes for a Busy
1938, for All the Boys*

DICK GANSTROM

Merry Christmas



THOMAS L. GIBSON

J. E. Brulatour, Inc.

*Best Wishes to All My Friends in the
Motion Picture Industry*

LOREN TUTELL

*Happy Christmas and Prosperous
New Year*

JOHN NIKLASCH

Good Christmas Cheer

AND BEST WISHES FOR THE
COMING YEAR

W. H. (BILL) STRAFFORD

Editor Cinema Digest

Business Manager Local 666

CINEMA

EXTENDS TO THE MEM-
BERS READERS, CONTRI-
BUTORS AND
ADVERTISERS

Merry Christmas

and

Every Good Wish for the New Year



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Wilding Picture Productions, Inc.

1345 Argyle Street

Chicago, Illinois

*May Your Christmas Be Merry
and the New Year Be Filled With
Prosperity and Happiness*

BERTEL J. KLEERUP
President Local 666

Holiday Greetings

AND A PROSPEROUS NEW YEAR TO
LOCAL 666 MEMBERS AND
THEIR FAMILIES

WILLIAM J. SCHMITZ

Steward Detroit District

DIGEST

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Christmas and a Happy and
Prosperous New Year.**

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TO ALL THE BOYS OF LOCAL 666**

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DECKER PRINTING COMPANY
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Chicago, Illinois

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ORLANDO LIPPERT

**Merry Christmas
"MY FRANS"
HAROLD A. WITT**

TECHNICALLY SPEAKING!

(Doc) Gantz Wishes You 24
Hours of Joy, December 25th
and 365 Days of Happiness in
1938

Season's Best Wishes



HARRY BIRCH

Advertising

CINEMA DIGEST

Best Wishes
for Christmas
and the New Year
CECIL P. MEEK

INTERNATIONAL
of
MOTION PICTURES
I. A. T. S. E.

Extends to each Producer and
Sincere Good Wishes for
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Christmas Joy and New
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LASTING, NOT FLEETING

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Associated with
ADVITAGRAPH CORP.,
LOUISVILLE, KY.

Wishing You Season's
Greetings



I. R. REHM

Atlas Educational Film Company

WISHING ALL MY FRIENDS
A MERRY CHRISTMAS
AND HAPPY AND PROSPEROUS
NEW YEAR

CHARLES GEIS

Christmas Greetings

VERNE W. BLAKELEY

*Best Wishes to My Many Friends and to
the Boys Whose Patronage I Have Enjoyed*



BOB DUGGAN

STUDIO LIGHTING COMPANY

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LOCAL 666

**Employer of our Members
Merry Christmas and a
New Year**

Season's Good Wishes

BROADCASTED TO YOU

WALLY HOTZ

Merry Christmas

ROBERT TAVERNIER

Kindest

Season's

Wishes



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*A Merry Christmas and a
Photographic 1938*

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BASS CAMERA CO.

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Chicago, Illinois

... a paramount wish!

Merry Christmas
from RED FELBINGER
of PARAMOUNT NEWS

to all the lads that read my
department in this here
journal . . . and the same
to those that skip it!

HAPPY CHRISTMAS AND NEW YEAR,
WASHINGTON'S BIRTHDAY, LIN-
COLN'S BIRTHDAY, YOUR BIRTH-
DAY, MY BIRTHDAY, DECORATION
DAY, LABOR DAY, HALLOWE'EN, IN-
DEPENDENCE DAY, MAY DAY, APRIL
FOOL'S DAY, MOTHERS' DAY, FATH-
ERS' DAY, ST. PATRICK'S DAY, FLAG
DAY, ARMISTICE DAY, COLUMBUS
DAY, VALENTINES DAY, PAY DAY,
EASTER SUNDAY, ELECTION DAY,
WASH DAY, FISH DAY, BATH DAY,
CINEMA DIGEST DEAD LINE DAY
(the day the boss goes screwy), THANKS-
GIVING DAY AND THE DAY AFTER
THE NIGHT BEFORE, OH, BOY.

(VI'S KRAX) VIOLA BRAUN

Christmas and New Year
Greetings Tailor Made
for You

G. DUNCAN TAYLOR
Burton Holmes Films, Inc.

THE STAFF OF CINEMA DIGEST
AND THE EXECUTIVE BOARD
AND MEMBERSHIP OF LOCAL
666 EXTENDS

Season's Greetings

Christmas
Cheer
and
Happy New
Year

HARRY
PETERSON

Season's
Greetings

TO ALL
THE BOYS

C. E.
WICKEMEYER

And I Want to Get In On
Wishing All of You a
Merry Christmas
too!

ALMA MAE BUTLER

Movietonews Reeling to You a

Merry Christmas and a

Happy New Year



EMILE MONTEMURRO

TO GEORGE E. BROWNE, INTER-
NATIONAL PRESIDENT, AND
TO THE MEMBERS OF THE
GENERAL EXECUTIVE BOARD

Merry Christmas and

A Happy New Year



FREDERICK GATELEY

"Greetings"

*of the Holiday Season
to All Our Friends*



Chicago Film Laboratory, Inc.

18 W. Walton Place

Chicago, Illinois

Sincere Good Wishes for a

Happy Christmas



FRED HAFFERKAMP

ORIENTAL ACCIDENTS

(Continued from Page Five)

ing to hold the main road through Chapei. Fortunately, we spotted him heading for us and jamming on the brakes we scattered in different directions seeking shelter in high bushes and behind fences. As the plane neared he dove slightly and opened fire with a machine-gun, his bullets hit wide, however. After he veered and headed homeward we cautiously crept back to the cars and speeded on once more. But much to our discomfort, the plane veered again and headed toward us once more. This time, instead of scattering, we were on a road lined with small shacks and foolishly ran in a group. As the warbird approached he let loose two large bombs which struck a shanty a few blocks away—this only served to encourage our heels and we continued down the road, hugging the walls. Finally the plane was directly overhead—it would surely be a direct hit this time. We saw one lone bomb leave the ship and there was then nothing left for us to do but wait—it seemed ages before it reached the ground, and it is practically impossible to judge just where one of those devilish things will hit. So this time we stood still and waited. Finally we were jarred by a slight earth tremor and a cloud of jet black smoke rose from behind the row of buildings. Then the plane, evidently his ammunition racks exhausted, turned its nose eastward and left us. Heaving a sigh of relief we sent the chauffeurs back for the cars and having suffered no casualties or injuries we continued back to the Settlement, feeling extremely lucky in that we had not featured in 'another accident.'

The End.

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Extends

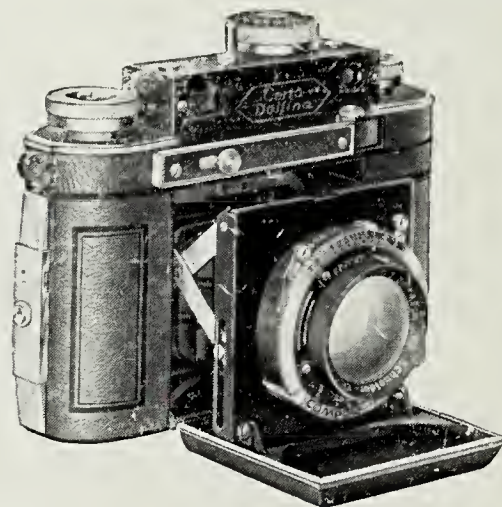
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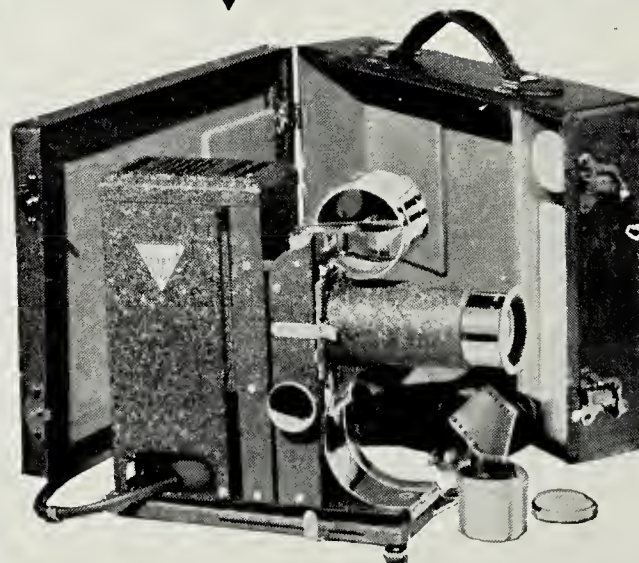
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Two New Films for Duplicating Work

Paper Presented at Spring 1937 Meeting of Society of Motion Picture Engineers
by Messrs. C. E. Ives and J. I. Crabtree of Eastman Kodak, Rochester, N. Y.

Editor's Note: Due to the timeliness of the following article on new duplicating films we have decided to postpone publication of the eleventh installment of Motion Picture Laboratory Practice until the January issue.

(I) Introduction

IT HAS long been recognized that duplicate negatives of sufficiently improved characteristics would be of value in protection against loss through damage to the original negative. Capstaff and Seymour¹ in an earlier publication have defined a perfect duplicate negative as one which would give prints identical in every respect to those obtainable from the original negative. Since that time two papers have been published^{2,3} giving the results of later work on photographic materials for duplicating work and methods for their use.

Recent progress in the photographic emulsion field has made available new duplicating positive and negative films which possess in a high degree the characteristics most needed for making satisfactory duplicates, and excellent results from the standpoint of quality and graininess have been obtained through their use.

(II) The Duplicating Positive Film

The Duplicating Positive (emulsion series 1365) consists of a yellow dyed positive emulsion of medium contrast coated on a clear base.

As shown in the curves in Fig. 1 suitable emulsion quality and development characteristics are obtained with the D-76 type of developer in the working gamma range of 1.0-1.5. There is practically no fog under normal conditions of use. It will be noted from the exposure scale that exposures somewhat greater than usual have been employed. The Eastman IIB sensitometer gives proper ex-

posures for process control purposes with multiple exposures of three to eight times.

The sufficiency of exposure under any particular condition can be judged from the extent of the straight-line portion of the curve obtained. It is usually found that a triple exposure is sufficient when the IIB sensitometer is set for the positive exposure condition with the exception that the light-filter is removed. The color-sensitivity of the Duplicating Positive emulsion is similar to that of Motion Picture Positive (series 1301) and, therefore, this film can be handled under the positive room illumination furnished by the Series O Wratten safelight in an indirect fixture.

(III) The Duplicating Negative Film

The Duplicating Negative Film (emulsion series 1203) consists of a low-contrast panchromatic emulsion coated on a gray base of the same type as used for other negative film.

The curves in Fig. 2 (see Pages 000 and 000) show that with the D-76 type of developer proper emulsion quality and control of contrast are obtained in the recommended gamma range of 0.6 to 0.7. Emulsion 1203 is exposed sufficiently when a single exposure is given with the IIB sensitometer at the normal *positive* setting.

The distribution of spectral sensitivity is shown by the spectrogram in Fig. 3, the indications of which will be found useful for comparison with those of other emulsions, as shown on page 64 of the handbook of "Motion Picture Laboratory Practice."⁴

This extended color-sensitivity gives the Duplicating Negative emulsion additional speed which is of considerable advantage where optical printing is employed, and particularly in the case where a master positive is dense.

While the panchromatic emulsion is sensitive to all portions of the visible spectrum, the green Wratten Series 3 safelight has the advantage of visual efficiency at the level of illumination employed in photographic darkrooms. However, the speed of the Duplicating Negative emulsion is such as to permit illumination levels somewhat higher than are obtained conveniently by the use of the standard Wratten Series 3 filter.

The most satisfactory way of obtaining the required increase in illumination is to substitute a sheet of tissue paper for the regular-weight white paper used in the Series 3 filter. The darkroom illumination should be tested with the Duplicating Negative Film in the manner recommended in the handbook of "Motion Picture Laboratory Practice"⁴ (p. 139).

It will be observed that both the Duplicating Positive and Duplicating Negative have a very fine grain structure and give a somewhat transparent brownish

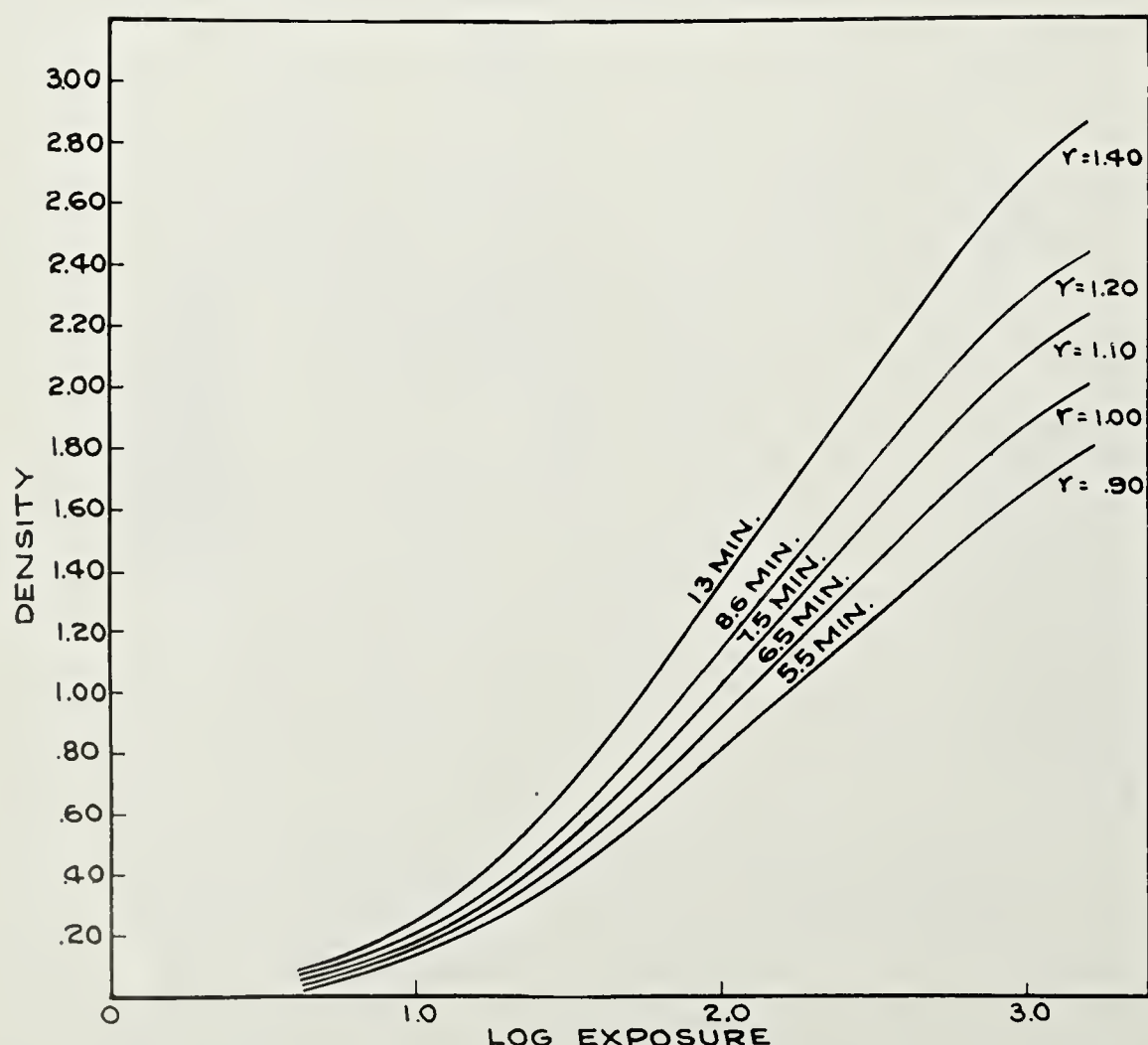


Fig. 1 (a). Exposure curves of Duplicating Positive (Emulsion 1365), with D-76 developer.

image. The effective density of such a deposit when printing by contact on Motion Picture Positive Film is considerably greater than that indicated by visual densitometry.

Consequently, the printing contrast under this condition is greater than it appears to be by visual or densitometric comparison with a Super X (emulsion 1227) negative, for example. The values for density were determined with a visual densitometer, usually the Eastman densitometer. The effect of this condition on densitometry and the selection of gamma values is treated in more detail following.

Both the Duplicating Positive and Duplicating Negative are capable of reproducing fine image detail.

(IV) Making the Master Positive

The master positive should be the first print made from the original negative in order to serve as an insurance against loss of or damage to the original negative during editing, cutting, or printing.

(a) *Printing.*—Good reproduction of tone in the duplicating process is assured if the exposure is selected in such a way as to utilize the region of proportional reproduction indicated by the straight-line portion of the characteristic curve. In this region the densities in the master positive bear a direct relation to those in the original negative.

While it is possible to obtain acceptable tone reproduction without confining exposures strictly within this range, the manner of procedure in the two steps in the process must be determined by trial and error. No simple systematic procedure can be prescribed. Therefore, it is assumed, for the purpose of description in this paper, that the region of proportional reproduction is utilized exclusively.

Printing exposure requirements for the master positive are illustrated in the following example: An original negative having a maximum density of 1.40 required an exposure of approximately 400 meter-candle-seconds to produce the required minimum density in the master positive of 0.70 at a gamma of 1.25 under recommended development conditions.

This exposure is given in 0.12 second by a 500-watt 110-volt monoplane filament lamp operated at approximately 85 volts and located at a distance of 10 inches from the raw film. These conditions refer to the case of contact printing at 15 feet per minute. The exposure required depends, of course, upon the emulsion speed realized under the actual development conditions for the Duplicating Positive.

Compare With Original

If the means of controlling exposures in printing the master positive provides regular log exposure increments from step to step equal to those used in the equipment for exhibition release printing, then the printer settings for master positive printing can be obtained from those found necessary for a "balanced" release print made from the original negative.

It is necessary only to establish the exposure level which will produce a sufficiently high minimum density for successful tone reproduction, that is, about 0.70. If this procedure is followed, the scene to scene variations in density are

largely disposed of and a minimum of adjustment will be required in the succeeding operation to produce a duplicate negative which has uniform printing quality.

When operating conditions are being selected for the duplicating process the effect of an adjustment at any point in the procedure should be tested by carrying the duplicating process through to completion. Results should be judged only by examination of prints from the original and duplicate negative, because visual examination of the Duplicating Film images may be misleading for the reasons set forth hitherto.

As stated in previous publications,^{2,3} the duplicating process requires printing equipment capable of giving good definition and uniformity of exposure. A diaphragm or matte type of light control is to be preferred to one involving change in lamp current and, consequently, changing quality of illumination. However, the effect of moderate changes in lamp current upon photographic contrast is not very serious with emulsions 1365 or 1203.

(b) *Processing.*—Duplicating work requires the use of the best possible processing equipment in order to hold such imperfections as unevenness below a tolerance limit. The print from a duplicate negative shows the accumulated imperfections of four steps in processing as compared with two in the case of a print from an original negative.

Good Results With Dilution

The curves shown herewith were obtained under the manufacturer's standardized processing treatment⁵ with *D-76* developer of normal strength. The *D-76* type of developer gives good tone quality and permits convenient control of development velocity through modifications of the nature suggested in an earlier publication.⁶ These modifications are also discussed on page 90, *et seq.*, of the handbook of "Motion Picture Laboratory Practice."⁴ In most motion picture processing machines a developer of somewhat less activity than normal *D-76* is preferable.

Good results can be obtained by dilution to two-thirds strength, for example, or as suggested in the publication

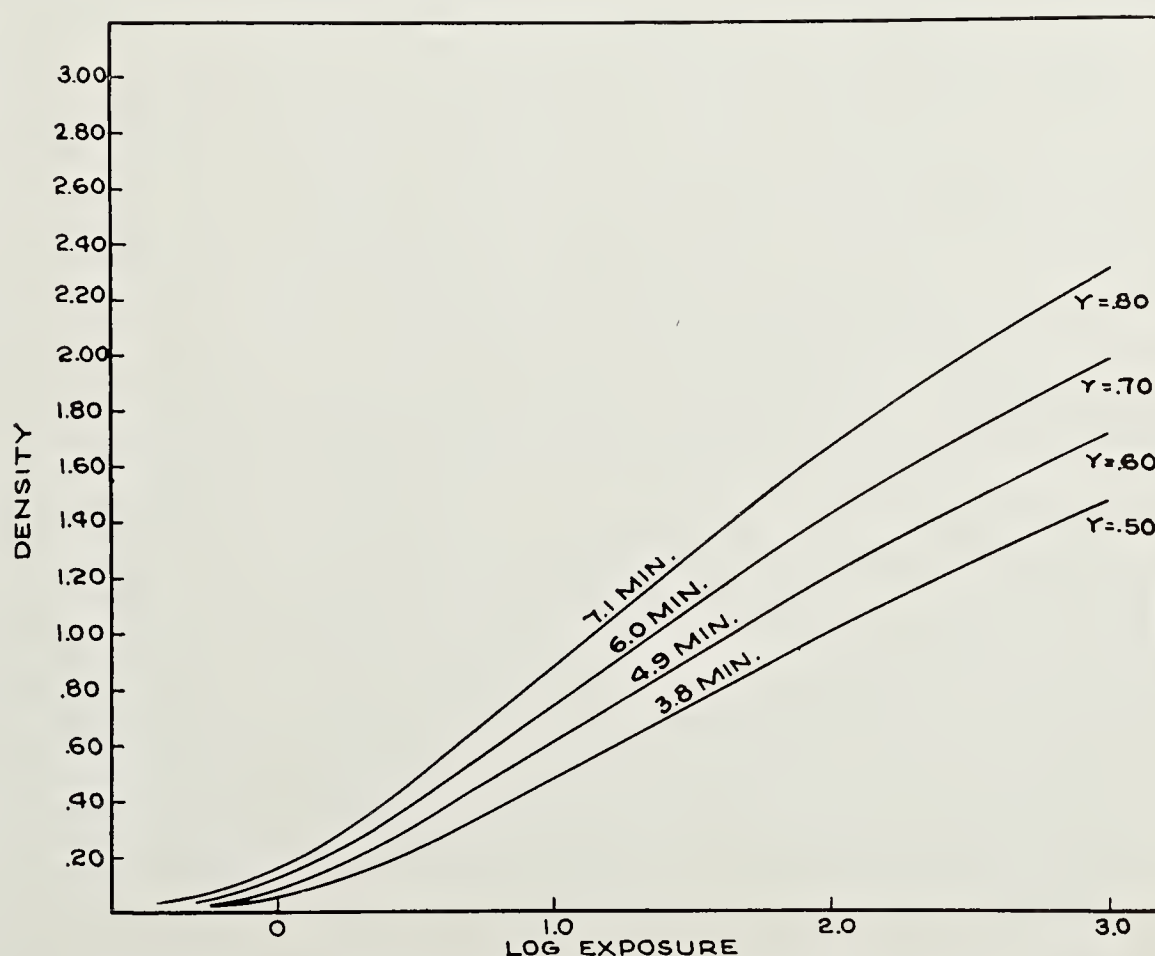


Fig. 2 (a). Exposure curves of Duplicating Negative (Emulsion 1203), with D-76 developer.

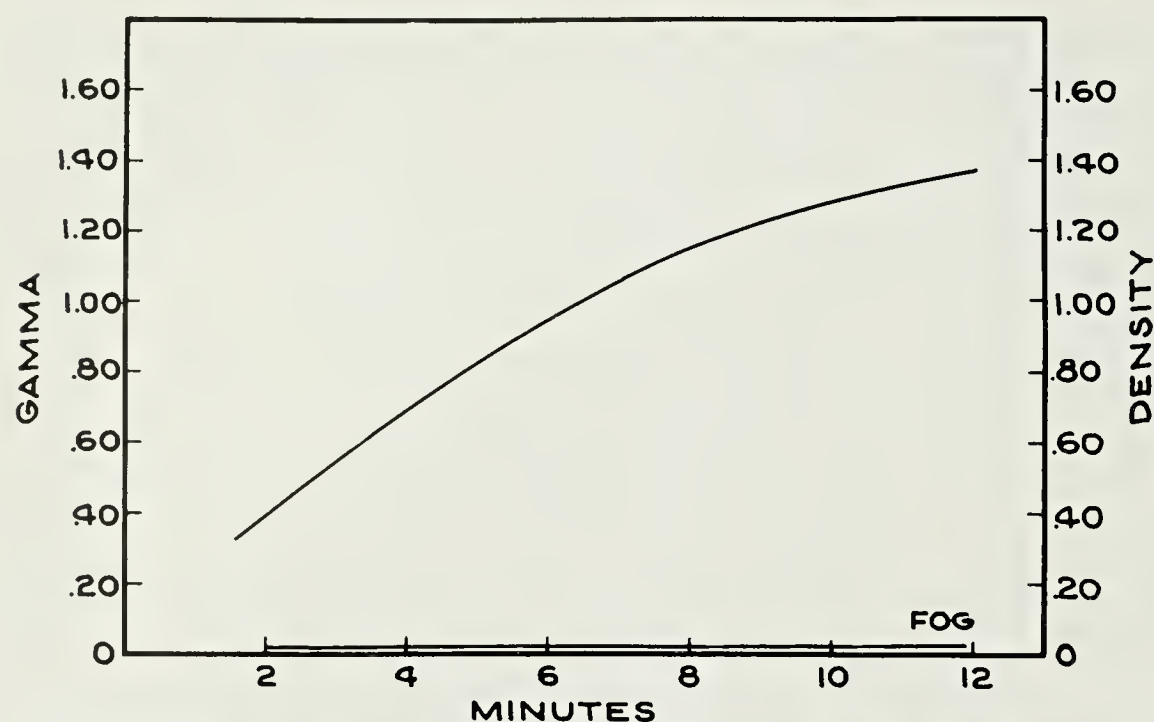


Fig. 1 (b). Time-Gamma curve of Duplicating Positive (Emulsion 1365), with D-76 developer.

referred to. In order to obtain the best processing control, it is desirable both for the Duplicating Positive Film 1365 and the Duplicating Negative Film 1203 that processing be carried on in developer maintained at a uniform degree of exhaustion and replenished to maintain a constant rate of development.

In selecting gammas for the master positive and duplicate negative it is assumed in general that no modification of quality is intended to be effected through the use of the duplicating process. Such modifications are easily made, but are considered as the exceptional case.

In the experimental work on the new type of duplicating emulsions tests were made on the effect of using a high gamma for the master positive and a low gamma for the duplicate negative as compared with the use of equal gammas in the two steps. Graininess was found to be less for the high-gamma—low-gamma method than for equal gammas. This confirms previous work³ on other emulsions. Master positive gammas between 1.1 and 1.5 were found suitable for the master positive with duplicate negative gammas in the neighborhood of 0.6 to 0.7.

Recommendations are made below on the basis of a value of 1.25 for the master positive. A higher gamma in the master positive has the effect of procuring somewhat greater effective emulsion speed in the master positive stage and, generally speaking, a corresponding increase in the exposure required for printing the duplicate negative, because of the increased master positive density. For this reason it is not found advantageous to use higher values for the master positive gamma.

The yellow dye is discharged very rapidly from the emulsion during development. While it imparts a temporary coloration to the developer, it does not impair the properties of the developer.

A good hardening fixing bath such as F-25 is suitable for use with emulsion 1365. In the fresh fixing bath, fixation is complete in 2 minutes. Hardening of this emulsion takes place rapidly and becomes excessive if treatment is prolonged greatly beyond this time. This should be avoided because the emulsion surface is water repellent and, therefore, liable to water spotting. If, because of necessarily longer time of treatment or because of the constitution of the fixing bath, hardening is excessive, this should be corrected by suitable modification of the bath.^{7 8} Fixing baths in an extremely exhausted condition should not be used for duplicating work.

Hypo and other soluble substances are removed rapid-

ly from the 1365 and 1203 types of emulsions during washing. On account of the value of any master positive or duplicate negative as a permanent record, the concentration of hypo should be reduced to a very low magnitude by thorough washing so as to avoid the danger of image fading.⁹

(c) *Drying.*—On account of the smooth glossy condition of the surface of emulsions 1365 and 1203 and the inherent rapidity of drying, any maladjustment in the drying operation can cause drying spots. The quantity of "loose" water left on the emulsion surface after squeegeeing must be very slight or droplets form with drying lines or spots as a consequence. However, a careful adjustment of standard squeegeeing equipment should suffice to give good results. The 1365 and 1203 emulsions are dried in one-third to one-half the time required for Motion Picture Positive Film under the normal

drying conditions for the latter. The drying rate should be diminished by lowering the dry-bulb temperature, or reducing the air velocity, or by raising the humidity in any convenient manner. Upon leaving the drying cabinet, the film should be in a suitable condition for handling in succeeding operations and, consequently, should have a moisture content of equilibrium with an atmosphere of about 60 per cent relative humidity at room temperature. This condition should be attained in about 15 minutes of drying time.

(V) Making the Duplicate Negative

(a) *Printing.*—As indicated above for the master positive, it is assumed that the 1203 duplicate negative is to be exposed in such a way as to utilize the region of proportional tone reproduction characterized by the straight-line portion of the density-log exposure curve. For a master positive having a maximum density of 1.95, an exposure of 150 meter-candle-seconds is required to produce the minimum density of 0.45 at a development gamma of 0.65. These values have been determined for the use of a master positive of the density and contrast recommended above. The resultant duplicate negative will have a maximum density of 1.30, a minimum density of 0.45, and a density scale of 0.85 as compared with 1.40, 0.40, and 1.0 for the corresponding values in the original negative. The difference in the density scale of the original and duplicate negatives results from the difference in the visual and effective printing densities of the Duplicating Negative Film. This type of discrepancy is observed with duplicate negatives made with materials used previous to the present time, but is of lesser magnitude. However, it has no disturbing effect in the duplicating operation after standards are once set up for the processing solutions which are used. Control in making the duplicate negative is maintained by means of sensitometric strips exposed on the IIb sensitometer in the manner indicated above.

In establishing the standard operating conditions the use of a typical set of data as shown in Table I should be convenient. It will be noticed that the gamma product obtained from the master positive and duplicate negative gammas (IIb sensitometer), which might have been expected to be unity, is actually about 0.81.

If local conditions favor the use of other developers or different gammas at either step in the process, then control values should be determined for those conditions

by carrying test samples through the complete duplicating process. Adjustments should be made in one step or the other until proof prints from the original and duplicate negatives developed together indicate equal effective printing contrasts in those negatives.

If it is considered advisable to utilize portions of the density-log exposure characteristic lying outside the straight-line portion, then new standard control conditions must be adopted. When a change of this kind is made in the master positive exposure, then compensatory changes in the development of the master positive and the duplicate negative and in the exposure of the duplicate negative are necessary if an acceptable reproduction of tone is to be retained.

In working out the new conditions discussed in the preceding paragraph, a density step-tablet should be attached to the original negative and should be reproduced with picture tests in all succeeding steps. Prints from the tablets in the original and duplicate negatives will furnish data for reproduction curves prepared in the manner suggested in a previous paper.³ A more complete analysis of the effect of changes in procedure in any step can be obtained through the use of a method for the study of tone reproduction described by L. A. Jones.¹⁰

Table I

Exposure and Development Data

	Mini. density	Maxi. density	Density scale
<i>Original Negative</i>	0.40	1.40	1.00
<i>Master Positive</i>	0.70	1.95	1.25
Printed on Emulsion 1365			
Step Printer: 15 Ft. per Min.			
500-watt lamp: 85 volts			
Meter-Candle-Seconds: 400			
Developed in <i>D-76d</i> , $\frac{2}{3}$ strength,			
70° F. $4\frac{3}{4}$ Min.			
Gamma: 1.25			
<i>Duplicate Negative</i>	0.45	1.30	0.85
Printed on Emulsion 1203			
Step Printer: 15 Ft. per Min.			
500-watt lamp: 60 volts			
Meter-Candle-Seconds: 150			
Developed in <i>D-76d</i> , $\frac{2}{3}$ strength,			
70° F. $3\frac{1}{2}$ Min.			
Gamma: 0.65			

As stated in connection with the printing of the master positive, the printing equipment must be capable of giving uniform exposure and good definition. It is anticipated that the process of printing the duplicate negative will frequently involve optical printing and that it may be required to produce duplicate negatives of equal quality by optical and contact printing. With optical systems where illumination is strongly specular the contrast obtained in projection printing is greater than that in contact printing. When printing from a 1365 master positive this increase in contrast may not be of the same magnitude as with materials previously used. It may be necessary, therefore, to make an adjustment in the development contrast of the duplicate negative or to modify the illumination system of the optical printer in the manner described by Tuttle and Young¹¹ in order to obtain the required agreement in

contrast. As stated previously, the printing contrast of a duplicate negative must be judged from the prints which

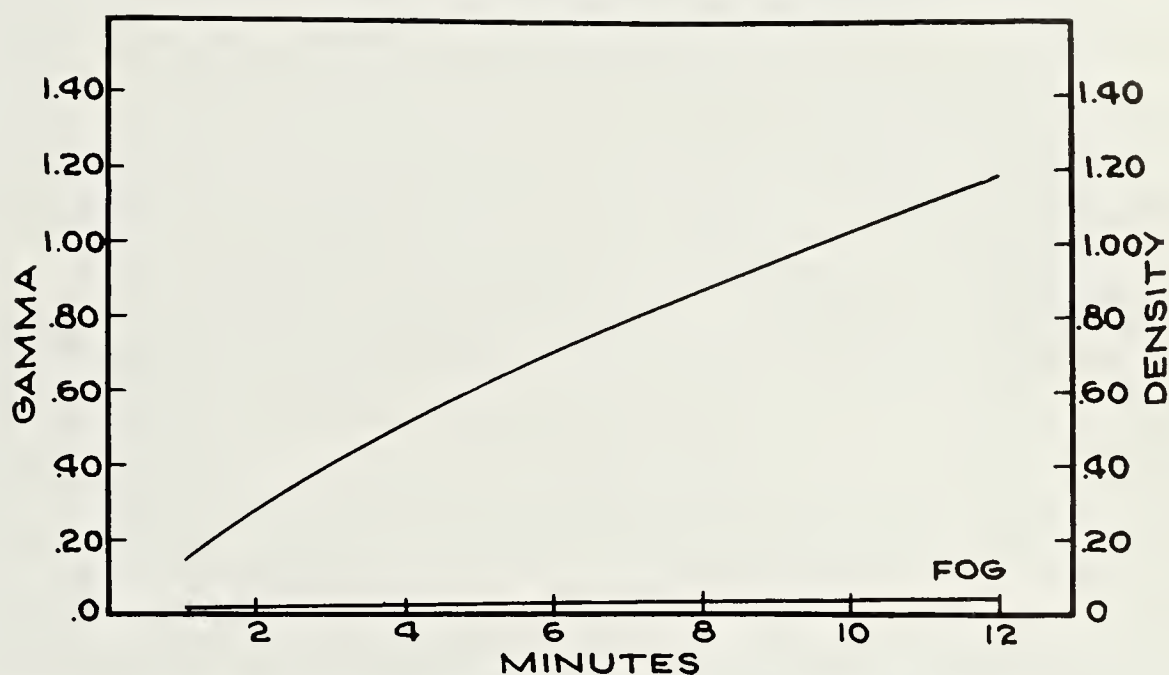


Fig. 2 (b). Time-Gamma curve of Duplicating Negative (Emulsion 1203), with D-76 developer.

it yields in comparison with prints from the original negative.

When the negative is exposed in such a way as to utilize the straight-line portion of the Duplicating Negative characteristic, the duplicate negative will usually have greater effective printing density than an original negative in which very low densities are found.

(b) *Processing*.—As in the case of the Duplicating Positive, a modification of the *D-76* developer can be used to advantage. Unless the development gamma for the duplicate negative is greatly different from that recommended, the same developer can be used as for the master positive. If a different developer activity is required for this or other reasons, it can be obtained in the manner suggested previously.

The developer used for Duplicating Negative Film should not be permitted to vary greatly in its exhaustion level. If it is attempted to compensate for extremely different degrees of exhaustion by varying the time of treatment, the image color may be affected in such a way as to alter the effective contrast for a stated development gamma.

In a fresh fixing bath of the *F-25* type, emulsion 1203 is fixed completely in 4 minutes. As recommended previously, necessary steps should be taken to avoid excessive hardening.

(VI) General Recommendations

Duplicating Negative emulsion 1203 can be used for making duplicate negatives from any master positive but results are best when Duplicating Positive emulsion 1365 is employed.

It has been found possible with the exercise of reasonable care to make duplicate negatives by the use of these new materials which will yield prints practically indistinguishable from those made from an original negative. However, a duplicate negative is acceptable for release printing only if scratches, abrasion marks, dirt spots, and unevenness in density accumulated throughout the process are held to the lowest possible amount by the exercise of due care in handling and processing operations. It is recommended, therefore, that all necessary aids to better processing such as those involving supplemental agitation in the developing bath and the use of an acid stop-bath be adopted.

Cinching can be diminished by carrying out all wind-

VI'S KRAX

THE "Felbinger-Robertson" versus "Kansas City Barnett" feud came to a head recently when Felbinger-Robertson received a package the other day from Kansas City, they thought it was a time bomb and dropped it into a bucket of water, and were their faces red when they finally discovered it was a piece of equipment belonging to them.

Don't forget the Dinner Dance February 5th, Stevens Hotel.

If Pasquale would quit smoking those little black cigars he might know that the little "Black and White Kitten" he stopped to pet wasn't a Pussy Cat. By all reports Pasquale will be out of the woods by spring.

Let's all put over the Dinner Dance at the Stevens Hotel.

A well known reporter for a well known motion picture publication has a part interest in a well known theatre and has taken the well known chisel out and trying to use it to promote 16 m/m Local Newsreel.

Don't forget I'll be seeing all you boys and gals at the Stevens Hotel, February 5th.

When good old Santy Claus climbs down your chimney this year, I sincerely hope he brings each and every one of you an extra special gift of good fortune for the coming year.

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TWO NEW FILMS FOR DUPLICATING WORK

(Continued from Page Twenty-one)

ing operations in sufficiently moist clean air and by winding firm rolls. Duplicating films show finger prints and other handling marks rather prominently on account of the smooth glossy emulsion surface.

Cleaning operations should be carried out in such a way as to avoid solvent spotting or the the condensation of atmospheric moisture. Also, attention should be given to the equipment for cleaning and to the choice of cleaning pads.

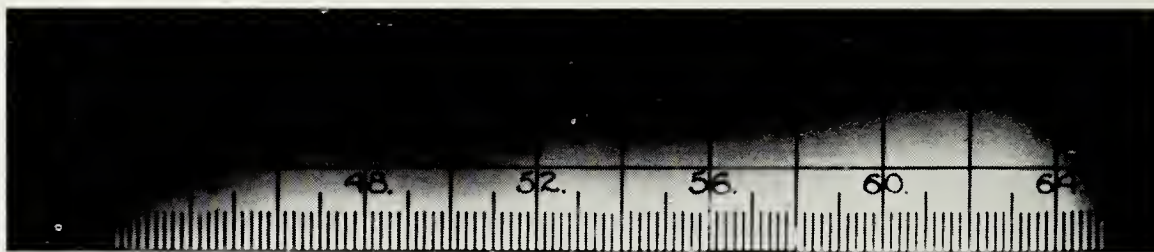


Fig. 3. Spectral sensitivity of Duplicating Negative Film.

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VERNE BLAKELEY started in the motion picture business in 1915 working as assistant operator for four years while attending high school. Was employed by the Rothacker Film Company in 1919 working in the laboratory for three months and then was put in charge of the title room. After shooting titles for eight months he was promoted to the camera staff. Following several years on the camera staff, his ability to handle any type of commercial productions soon gave him a wide experience in the industrial field.



Verne Blakeley

Was associated with Rothacker until 1926 when Consolidated took over the Company moving it to New York. Blakeley then joined the Douglas Rothacker Industrial Pictures Company and had a two month's assignment at the new General Motors proving grounds, photographing the first pictures ever made there. He joined the Chicago Film Laboratory in November 1926 as head camera man and is still associated with that company.

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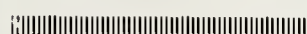
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By W. H. S.

NORMAN ALLEY, charter member of Local 666, made nearly 5,000 feet of negative for Universal Newsreel of the attack on the Panay and the removal of the survivors and care of the wounded.

Though wounded in the shoulder, leg and hand, Alley concealed the precious negatives and made his way to a safe place to communicate with his New York office. Arrangements were made for him to board the China Clipper at Hong Kong and bring the films to the United States. Norman Alley was the last civilian to leave the Panay. He made pictures of the crew jumping overboard as the vessel sank.

During the attack Alley cranked his camera, oblivious to danger, mindful only that this is news and that he was a Newsreel Cameraman. Norman Alley arrived in Chicago December 29th with his wife and three children after a delayed flight from the West Coast, his plane was grounded at Cheyenne, Wyoming, and again at Omaha, Nebraska, due to bad weather. There was a crowd of about 75 friends and well wishers at the airport to greet him.

The plane remained for just 30 minutes then continued on to New York where the work of developing, editing and printing the negative of the sinking of the Panay was immediately begun.

CAMERAMAN'S RESOLUTION

By J. Roy Hess

I know the INFRARED will bring
 To LIGHT a lot the eye can't see,
 I'm going to try this infra thing
 On my own personality.
 EXPOSURE of my faults I'LL court,
 That LIGHT and ANGLE I may see,
 And tolerance I'll make my forte
 To aid my personality.
 Prime object of the PICTURE game
 Through tolerant LENS I'll try and
 see,
 Not striving for immortal fame,
 Just building personality.

NEW CAMERA

A new type of motion picture camera, invented by Capt. Fernando Chiapparelli, is being tested in Washington. The camera operates with a revolving lens and makes possible, it is claimed, panoramic pictures with a range as wide as that of the human eye.

First films, constituting panoramic "travelogue" of the national capital, will be ready for exhibition in January, it is said. Audiences will see these pictures, according to Chiapparelli relieved of the eye strain resulting from the contrast between glaring light of ordinary width films and the bands of darkness on either side of the screen which are included in the range of vision.

The film used in the new camera is 70mm. wide, rather than the usual 35mm. and has a blank area wide enough for the new "stereophonic" device which causes each sound to emanate from its point of origin on the screen.

The inventor says his new camera would make it possible to take motion pictures of an entire baseball game, from outfielders to spectators in the stands behind the home plate.

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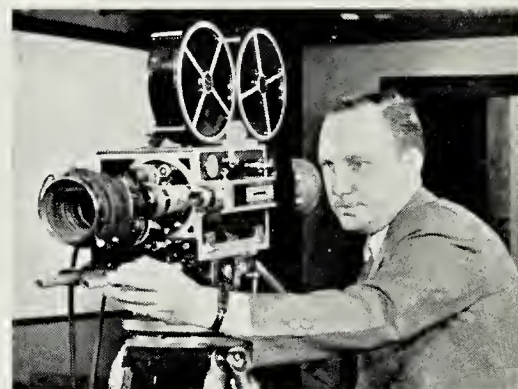
The Sinking of the U. S. S. Panay

By NORMAN ALLEY

"It was about one-forty on Sunday, December 12th, I had just left the officer's mess room, I stepped on the superdeck. At that time the boat was about 28 miles above Nanking. We had intended to organize a little poker game or something and I was going around the top deck to see what I could do about it. Suddenly there were airplane motors heard and we looked up to see what their position was and noticed that they were directly on our nose. The sound of whistling bombs came within three or four seconds after we heard these airplane motors and I can say very truthfully that the sound of a terrific explosion came within three or four seconds after we heard the whistling. The first explosion seemed to hit part of the Panay's bridge. The bombing planes which released these first loads of the Japanese navy flight were twin motored. To look up in the air at them they looked something like our American Lockheeds. They were flying at an altitude of around 7000 to 8000 feet and did not turn around after they dropped their first load but continued in the general direction of Nanking.

My first reaction was that the Japanese had probably mistaken the Panay for an enemy ship and had realized their mistake and were leaving. This, however, was strictly in error because almost directly thereafter a squadron of six power pursuit type bombers came over us at a very much lower altitude, I'd say from 800 to 1200 feet and immediately began to power dive and release what seemed to me to be 100 pound bombs in each individual dive. The suddenness of the certainly unwise attack came as a kind of distinct shock to all officers and crew. The automatic orderliness and the discipline of the officers and the crew of the Panay was splendid. They went immediately to their posts and when the Japanese had dropped five loads (it might have been six) the Panay machine guns were fighting them back. I want to tell you that the civilians aboard that ship were tickled to death to see those machine guns in action. I saw Captain Hughes go assisted from the bridge to the galley right after the first explosion. He had been badly injured. He was thrown against the wheelroom on the bridge. His legs were broken and he was certainly in bad shape. Then I saw Ensign Biwerse, who was our Communications Officer (incidentally the radio and the generator on the ship and engine evidently went out on the first bomb) anyway, Ensign Biwerse had been standing on the deck just aft the bridge and after the first bomb he came down and he didn't have any clothes on. I said, "What's the matter." He said, "They blew my pants off." I understand he got quite an injury at that time. Lt. Arthur F. Anders, who took over command when the Captain was injured on the second or third bomb, was hit in the neck and in giving his orders he began writing with chalk on the side of the boat and not long after he was hit in the hand so he couldn't even write his orders. He finally gave his orders in sign language of his own. But I want to tell you that the efforts he made in giving his orders to the gunners and the crew were fine. About the same time I went up to Dr. Grazier, the ship's Doctor, who was treating Lt. Geist who had been injured by shrapnel wound. During the next four or five minutes the Japanese re-

leased no less than 17 loads on the little gunboat. It was necessary for me to go up to the officer's mess room on the superdeck up near the bridge to get my camera. At that time these quarters were absolutely in shambles. On returning to the main deck, a bomb landed on the port side about 25 feet in the water and blew fragments against the ship's side and took my hat off. Incidentally, it put a little piece through one of my shoulders but otherwise didn't injure me. Just behind me, after he had spent several minutes in the Chief Petty Officer's quarters was Sandri, the Italian newspaper correspondent. As I turned around, he had been struck in the side and he said in perfect English (although he had never addressed me in English before) he said, "Norman, I'm hit." It was about one-fifty, or ten minutes after the first bomb was dropped, that I noticed several men preparing to take the first load of wounded ashore in the outboard motor sampan. On the river they use these shallow boats instead of using the life boats. They put five or six of the wounded seamen aboard and had reached a spot I'd say Oh, practically half way to the shore when two of the Japanese pursuit bombers who had just released a load over our craft, all of a sudden, instead of climbing again, they turned a left bank and pursued this little sampan which was travelling to shore, and let loose with their machine guns and one of them released a bomb but I'm sure the bomb was not intended for the sampan because it landed 400 or 500 feet from it. But I learned later that crew members Ensminger and Kozak, who had fallen slightly wounded at the time, one in the leg, and I think in the arm, were wounded quite seriously by those later actions in the machine gunning. Chief Boatswains Mate Mahlmann was manning a machine gun, in fact, he had four guns, his pants had been blown off by one of the first bombs. All the gun crew were operating and had utter disregard for personal injury. A "205", abandon ship, was ordered and a motor sampan ordered. The first uninjured crew members were taken ashore and the gunboat was shipping water and seemed to be in immediate danger of sinking and crew members were giving up their life belts to civilians and



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were jumping into the water from the after main deck. They were carrying table tops for assistance. These men elected to lighten the load on the rescue sampans by swimming for shore independently. A fellow, Huffman, threw a life jacket to me when he saw that I didn't have one. Huffman, Williamson, Johnson and Adams, they certainly are to be highly commended.

"About two twenty-five I was placed aboard the life boat, or sampan, and taken ashore. The boat was sinking as we pulled away from the starboard side and I noticed that the boat had been frightfully scarred from the bombing. There was hardly a square foot on either side of the vessel which was unscarred from fragmentary explosions. After landing on the north bank and trying to get the wounded men as comfortable as possible we were astounded at about three to hear the sound of machine gun fire. A Japanese landing party opened up fire on the bridge. The party was observed going on board and leaving. They were on board about five minutes I should say. At three fifty-four P. M., the Panay sunk. At about four P. M., we again heard Japanese coming and tried to remove the wounded into the high bamboo brush. The planes flew over and continued on across the river and dropped incendiary bombs on the Peiping and the Moishia. These ships immediately caught fire and the screams of the civilians and Chinese refugees from Nanking aboard these ships were clearly audible across the river. During all the above since the first bombing, very badly incapacitated, our Captain Hughes directed the operations and was very successful in the evacuation into safer territory."

VI'S KRAX

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FEBRUARY 5th

STEVENS HOTEL

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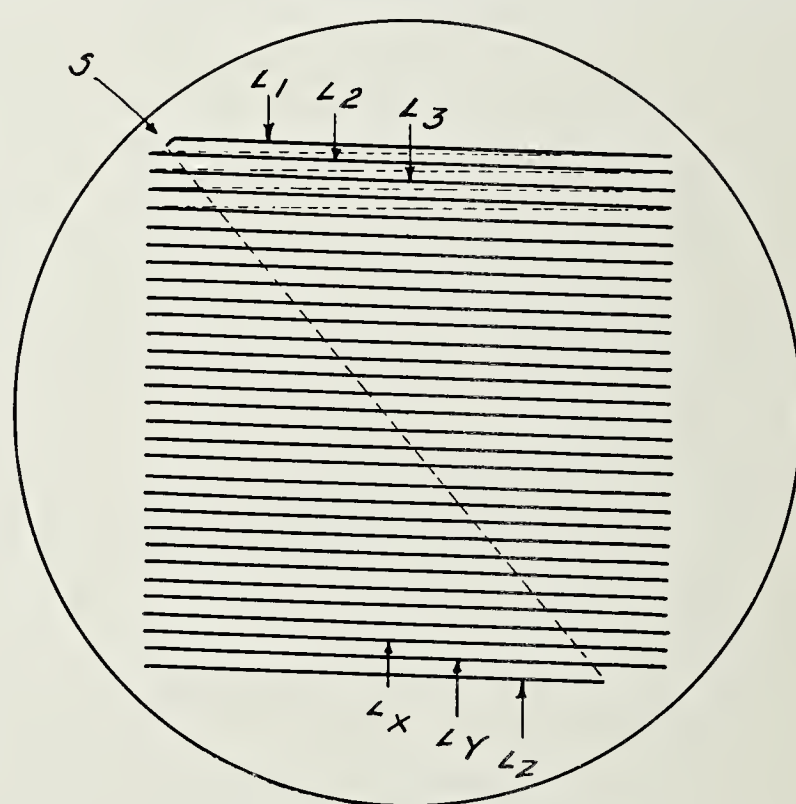
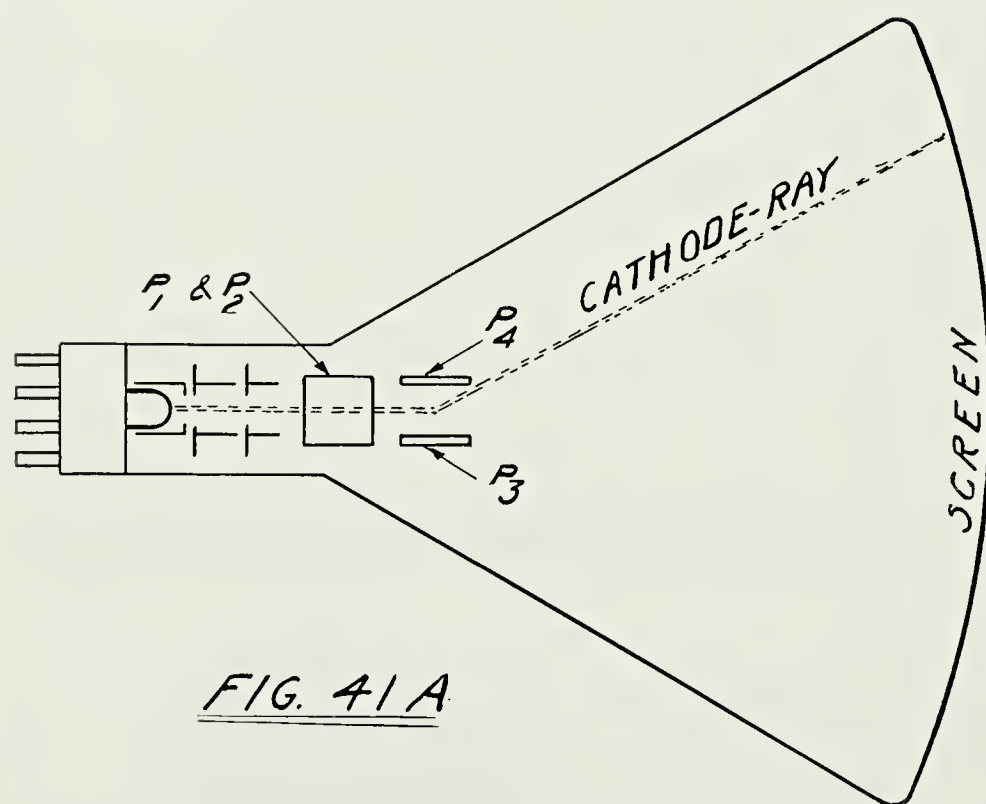
By C. P. MEEK

THE charge on the *line* condenser will begin again as shown at A_2 of Figure 41B and the second line L_2 of Figure 41A will be started without delay. But during the horizontal passage of the beam on this second trip, the *picture* condenser will be charged a little more in the amount V_2 of Figure 41C, and its influence will cause this line to carry the same slant as the first. At the end of the second line, the *line* condenser will again discharge as shown at B_2 of Figure 41B, and the spot will once more fall back to start a third line. Each succeeding line will be moved slightly down below the preceding one under the influence of the gradually increasing voltage of Figure 41C, and condition 5 will be met.

almost identical with that used for the drawing of the individual lines across the fluorescent screen except that the value of the condenser may be different. The timing elements of the circuit which compels each line to fall below the preceding one must be such as to cause the condenser to reach its proper condition of charge only after 30 lines have been drawn.

Section XL — The Raster

The raster of Figure 41A is the group of lines drawn on the screen of a cathode-ray tube by the reaction of the impact of the electronic stream on the fluorescent material. It forms the base on which the television picture is formed



And so the process will continue until 30 lines have been drawn. At the end of the last line, L_2 of Figure 41A, the discharge of the *line* condenser at B_{30} of Figure 41B and the simultaneous discharge C of the picture condenser as shown in Figure 41C, will release the beam from the influence of both voltages. The spot will sweep back diagonally across the frame as shown by the dotted line to the original starting point "S" of Figure 41A at the upper left corner of the picture. Then both condensers will begin to recharge, the influence of their voltages will be felt on the plates P_1 and P_2 responsible for the horizontal movement of the spot, and the 31st line will be started as the *first* line of the second picture, and a recurrence of the gradually increasing voltage V_1 of Figure 41C will cause it to be drawn on the same slant as before.

Notice that since the interval of time involved in the discharge of the condenser responsible for the vertical movement is the same during each discharge, the intervals of time necessary for the movements of the spot from the lower right corner to the upper left will always be identical, and condition 4 of the requirements will be satisfied. This reads: "An equally definite and often longer time interval must elapse between the end of the last line of a picture and the start of the next."

The time base circuit which influences the plates P_3 and P_4 of Figure 41A to cause the vertical movement is

by increase or decrease of the flow of electrons which strike the screen.

This figure shows the raster for a square 30-line television picture which has been formed by lines drawn from left to right, and with each succeeding line below the preceding one from top to bottom. In actual practice the lines would not be so far apart, since the spot formed by the cathode-ray would not be sharply outlined, but slightly blurred to cover some of the gaps.

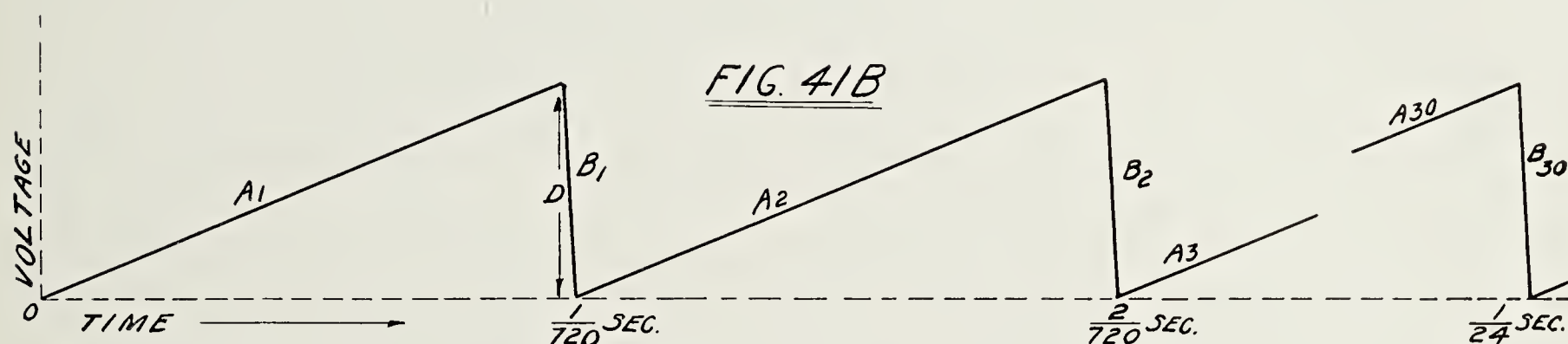
The lines are not necessarily drawn from left to right and below each other. They may be drawn from bottom to top and adjacent to each other from right to left, or in any other manner desired. The raster shown here is drawn so for convenience. 30-line pictures are more or less out of date, and this quantity of lines per picture is shown only for the sake of clarity, since it would be difficult to clearly indicate the processes which go on in an illustration of a raster of 240 or more lines, due to the close spacing. In the case of a modern picture of high definition, seven or more lines would be sandwiched in between each pair of those shown in the figure. A better focus of the electronic stream would be obtained, and the intermediate spaces would almost disappear. With persistence of vision, the fluorescent screen would show a sheet of light rather than a group of separate lines, and when modulated the lines would be unrecognizable as such.

Notice now in this figure that there is a small portion missing from the right end of the bottom line. There is an interesting bit of business involved in this, and an analysis of the time interval during which this line should have been completed is well worth while.

It has been shown that the cathode-ray moves from left to right to draw the spot across the fluorescent screen to

picture without causing any difference in the time interval between any two successive lines, even though they be the last of one picture and the first of the next, some provision must be made to take care of that time interval.

That of the condenser responsible for the placement of the lines below each other has, therefore, been reduced by an amount equal to that necessary to take care of the



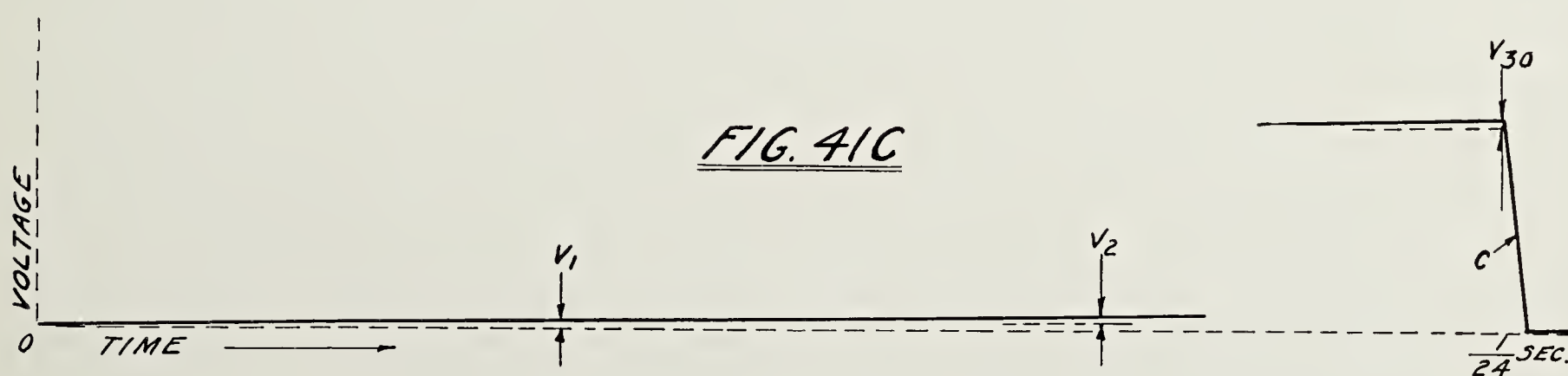
form each line. At the same time the vertical scanning equipment moves the lines so that they do not overlap, and each successive line falls below the previous one until one picture is completed. At the end of the first image the next line starts at the top of the screen to draw the first line of the second picture. This requires the dragging of the beam from the right hand end of the bottom line to the left hand end of the top line, this distance being approximately $1\frac{1}{3}$ times that which the spot travels after the completion of each line. It is with this last-mentioned action that the missing portion of the final line is involved.

Just what goes on in the circuits which cause this last movement? By referring to $B_1, B_2 \dots B_{30}$ of Figure 41B and "C" of Figure 41C it will be seen that the condensers do not drop from a condition of full charge to no charge instantaneously. There is a very definite time interval between the start of the discharges and their completion. True—this is extremely small in comparison with that necessary to bring the condenser to a condition of full charge, but it is an interval of time.

discharge, and the beam is permitted to fall back from the lower right to the upper left hand corner of the frame. This interval of time is equal to that required to draw the final line of the picture from the place where it actually ended to the end of the normal line *plus* the normal time of discharge of the line condenser. In that minute period the beam is snapped obliquely across the screen, namely, from lower right to upper left. Is there then, any wonder that the oblique path of the beam should be invisible since it travels at many times its normal speed?

Interesting also is the little curve in the upper left corner of the raster of Figure 41A. This is the spot where the cathode-ray again comes under the influence of the line condenser's charge and is dragged into place to start the first line of the next picture.

In high-definition pictures some other provision must be made for the return movement described above. The invisibility of the returning ray is dependent on the *difference* between the normal speed of movement of the spot and that of the return movement. In pictures of 240 or



Observe closely the right hand end of the saw tooth oscillation of Figure 41C, and its relation in respect to time with the same period of Figure 41B. While the condenser responsible for the placing of the lines one below the other is discharging ("C" of Figure 41C) the condenser which controls the drawing of the beam from left to right across the screen continues to charge as shown by A_{30} of Figure 41B, and endeavors to complete the last line. But since the picture condenser takes time to discharge, and yet must reach the starting point of the next

more lines the cathode-ray moves across the fluorescent screen eight or more times as fast as it did for the 30 line picture. In consequence, the *difference* between the speed of the beam for the normal horizontal lines and that of the return movement is not great. If the beam is returned to the starting point obliquely across the screen as shown, the spot will leave a mark in its path. This being the case, it is pushed off the space occupied by the horizontal lines and is moved around the outside of the frame to the starting point of the next picture.

Screenings, Thither and Yon

By ALMA MAE BUTLER

WITHOUT knowing the topography of Europe, one might believe it impossible to cross three nations in a single day, browse about the capitol of each, and still find time to eat, drink and be merry. Europe, exclusive of Russia, is just about the size of our state of Texas, and certainly a jaunt across Texas doesn't entail much ceremony, other than checking off a few county signposts. European transmigrations, however, exact so much human composure that it behooves any irascible American, with an Atlantic voyage in the offing, to brush up on the virtue of tolerance, against the repeated demands to dig out that misplaced passport, throw open the soiled do-dads and worse yet, to assume the stark innocence of little Mickey Mouse if Customs perchance turns up that cache of liqueurs that sought to be smuggled back home.

I often wondered if our American movies truly depict the actual rites of being herded, pell mell, into those stuffy, foreign railway coaches, with bundles, birdcages and bananas, and the privilege of working out one's own salvation. They most assuredly do! It's one grand melee; something well worth remembering. In the excitement you even forget your threat to thumb a good, healthy nose at Paris, and the last of its quaint, little turret rooftops completely escapes your view.

Six of us, all human beings, were shoved into that one compartment. The old man in the corner was shaking with fever and chills. His wife, a pudgy, little thing in black, busied herself by ministering to his whims and regarding me as something loathsome. Being the only American made it difficult to maintain that "status quo." But for all the strange maneuvers and my efforts to decipher the twaddle, I found more satisfaction in glimpses of fertile fields where peasants bent over their toils. Chantilly; Rheims! They passed in a flash, with miles of poppies between. Then the panorama changed. Small, thatched cottages appeared where before were just acres of land, and the commotion among those present told that Brussels was close at hand.

This meant, particularly, being jostled all over again, enduring a brand new fleecing in swapping the left-over change; battling a fresh charge of blasphemies—just because you happen to be "another of those rich Americans with nothing to do but travel." You get used to it! Actually, it's these brisk, little scrimmages that give the real zip to that first big jaunt o'er the sea!

Brussels is tranquil and courteous, with nothing of the hubbub of Paris; a city of old churches and museums—industries of world-wide renown. I dropped around to the palace but the king was out for the day, so; I hied off to the little lace shops, with a snack or two on the way.

The simplest meal in Brussels is enough to make you feel you're attending the Feast of Belshazzar. The enormous, silver tureens, borne in like the Sultan's jewels, are far more worthy of the head of John the Baptist than a mere platter of pork and beans. Europe spends many hours at its repasts, just munching, quaffing, and hashing over the news of the day, and whatever may be the topic, it's sure to wax into something of international significance, for Europe lives always its wars.

Even quiet, sedate Holland nibbles at her breakfasts of rye bread and cheese, spears another hunk of bologna, and then tilts back to mull over the didoes of her neighbors. But Holland is wise; she holds her tongue in her cheek and lets them go on with their frays. God smiled, and Holland

was born! Her neutrality, chastity and love of peace are but fruits of masterly direction. Picturesque, kind and clean; Holland, the land of dykes. Wholesome, sincere and serene; Holland, the land of bikes!

Amsterdam is a cosmopolitan city of winding canals and many bridges. Huge steamships sun themselves in the harbor against the bluest of skies. It was Sunday, the first day of the Jewish New Year; all Amsterdam saddled its wheels to prayer. Sweethearts rode by, arm-in-arm, toggled up in their Sabbath best; mothers, with their chubby youngsters, perched up in front or the rear. I counted at least fifty bikes passing in a group, enroute to the old church over the canal.

The service was in Dutch, and naturally most incomprehensible.

I soon had an eye out for that little velvet bag with a bell, suspended on the end of a stick. It seemed it was passed every minute. After the seventh collection, my generosity had snapped, so I slid out before the finish and wended my way to the Ghetto.

A Ghetto is the same all over the world; bristling, colorful and fishy.

To fulfill the expectancy to see old Holland, one must take the excursion boat through the locks, down the main waterway to the Isle of Marken, Edam and Volendam. Marken and Edam are quaint, little settlements infested with pantalooned kids who beg for everything you have. In these little villages are the spotless, beflowered cottages that give birth to the delicious cheeses for which all Holland is famous. Volendam is boastful of its lop-sided, antediluvian shops and heel-splitting, cobblestone streets; a page from Mother Goose. Everywhere the Dutch youngsters blurt out "O.K.," and that's the only English they say.

In Amsterdam is the famous Rijks Museum, where Rembrandt holds an auspicious position. In Amsterdam are the diamond cutting mills, and the gems are quite reasonable too. The Palace of Wilhelmina is a chilly, imposing structure of bare, marble halls, devoid of all interior furnishment. This much for the souvenir filcher. But I liked the soldierly, old creature who led us like storm troops throughout its archives and towers, and especially his misery in getting over the hurdles when sounding his painful "R's." I visited the Bourse to check up on all those bonanzas that give the perpetual headache.

In all Europe one finds those inviting, little sidewalk cafes where he can drop in for an ale or soda, just to watch the world pass by. I sat at a table, toying with a jug of lemonade, thinking of nothing in particular; probably just cabbages and kings. Here was Holland, which everyone loved, the land of harmony and peace. Holland with its tulips in summer, and skating the canals in winter. Little Hans Brinkers without any woe; no cares for the world or tomorrow. And there was America, the big, human racetrack where mortals chased about in circles. Yes, Holland was the place where one should be born, not America, that I could discern.

It might have lasted forever had not the musician approached when I sighed. From the soul of his fiddle came forth this strain, "It's a Sin to Tell a Lie."

It's January now; January in Holland! Hans Brinker is out on his skates. January in America too when the winds from the north send us to the southland to bake. A Melting Pot! We stew if it's summer, we sputter in spring and fall; but—

"Vive l'Amerika," we're lucky to be frying on top of the earth.

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Motion Picture Laboratory Practice

ELEVENTH INSTALLMENT

On account of their convenience, silence, and favorable quality of illumination with panchromatic materials, incandescent tungsten lamps have been widely employed in motion picture production; arc lamps, however, are employed in some studios for special purposes and their use is again increasing. With the almost exclusive use of panchromatic film, gaseous conductor lamps of the type represented by the mercury-vapor tube are falling into comparative disuse. The spectrum of tungsten light is continuous; that of the electric arc contains a large number of bright lines against a continuous background of lower intensity. The lines, however, are so numerous that for all practical purposes the spectrum may be regarded as continuous. The spectrum of gaseous conductor lamps consists entirely of a few bright lines in widely separated parts of the spectrum.

The spectral quality of the high-intensity sun arc is very similar to that of sunlight, and, consequently, the distribution of spectral sensitivity for a panchromatic material is much the same with both sources. The spectral characteristics of tungsten radiation as from Mazda lamps, however, are quite different from those of sunlight in that a far larger proportion of the energy is in the long-wave-length red.

Thus, the spectral region in which tungsten radiation is low in energy is precisely that to which a blue-sensitive emulsion is most sensitive, while the major part of the illumination is in portions of the spectrum at which the material is not sensitive at all. Consequently, either long exposures or a high intensity of light are required with such materials when using tungsten light. With color-sensitized materials, however, the case is quite different. These are sensitive to a spectral region in which the proportion of energy from a tungsten lamp is increasing. For this reason panchromatic materials, such as Eastman Super Sensitive Panchromatic Negative, which is highly sensitive to the longer wave lengths, is especially adapted for use with tungsten illumination.

The radiation of the electric arc when using the so-called panchromatic carbons is very similar in spectral character to that of incandescent tungsten. Practically, the panchromatic carbon arc may be used interchangeably with incandescent tungsten lamps.

Mercury-vapor light is due entirely to a few bright spectral lines in the violet, blue, and green. Since it is deficient in red, red objects are reproduced too dark. Mercury-vapor tubes have sometimes been used in conjunction with tungsten light to make up for the deficiency of blue in the latter.

Reproduction of Color with Photographic Materials

Correct color reproduction can, of course, be recorded only by means of natural color photography; in ordinary black-and-white photography we must be content to render the various colors of the subject as shades of gray in accordance with the brilliance of the color. Thus, the proper position for any color in the scale of tones, ranging from white through intermediate shades of gray to black, depends upon the brilliance, or we might say "brightness" of that color. Yellow, for example, must be rendered as a lighter gray than red; red usually as lighter than green, and green in turn lighter than blue. Only when this is done will the black-and-white image reproduce properly the correct relative tone values as seen by the eye.

In the pages immediately preceding, we have stated the important facts that neither the eye nor sensitive materials respond equally to different colors. The result is that colors are not reproduced by a photographic material in their proper position on the tone scale when the usual sources of radiation are employed.

Color Filters

The effective response of a film or plate, and, consequently, the relative brightness in which colors are reproduced with any given photographic material and light

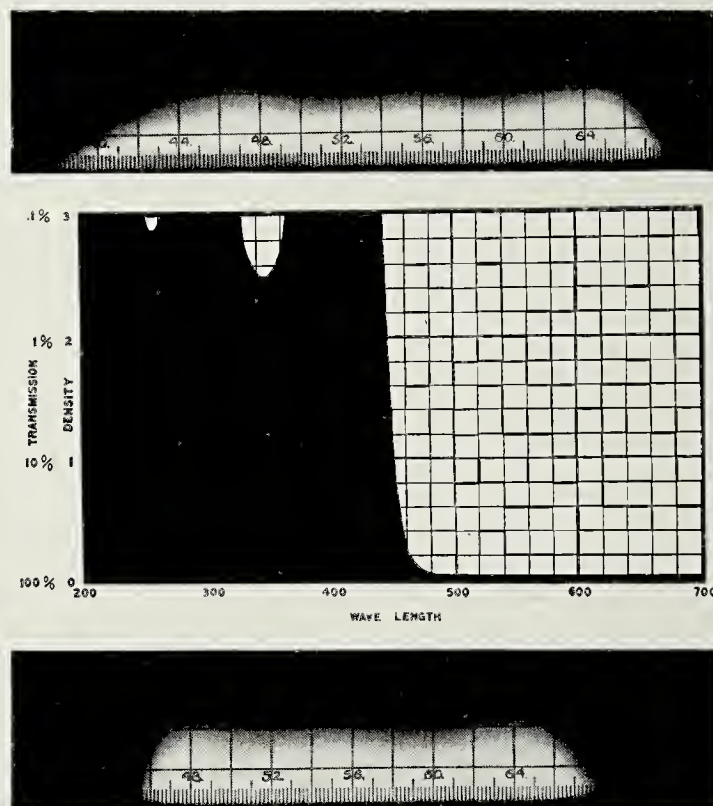


FIG. 35—Spectrophotometric absorption curve (center) of a yellow filter (Wratten No. 3), and wedge spectrograms (top and bottom) showing its effect on the distribution of spectral sensitivity of Eastman Super Sensitive Panchromatic Negative Motion Picture Film.

source, may be altered by the introduction of screens possessing selective absorption. Thus, if a screen which transmits green and red quite freely but absorbs some of the violet and blue is placed at any point between the light source and the sensitive material, the effective spectral distribution of energy on the sensitive material is changed. The photographic effect of violet and blue is reduced because some of the light which would affect the sensitive material is absorbed by the filter. The effective proportional sensitivity of the material to green and red is thus increased relatively to the violet and blue, since green and red are transmitted by the filter with little or no absorption. Consequently, it is possible, through the selection of filters with the necessary spectral absorption, to change the effective response of a photographic material in any way desired within those portions of the spectrum to which it is sensitive, and so control the relative tones in which colors are reproduced.

Figure 35 shows the effect of a light yellow filter (No. 3) on Eastman Super Sensitive Panchromatic Negative Motion Picture Film, using daylight as the source of illumination. The absorption curve for the filter is plotted after the manner adopted in "Wratten Light Filters"* in which similar curves are given for the more

*Published by Eastman Kodak Co. Price, \$.50.

than 100 Wratten filters which are commercially available. In these curves the absorption is plotted as density against wave length; thus, the height of the absorption curve (black portion) at any wave length represents the logarithm of the absorption.

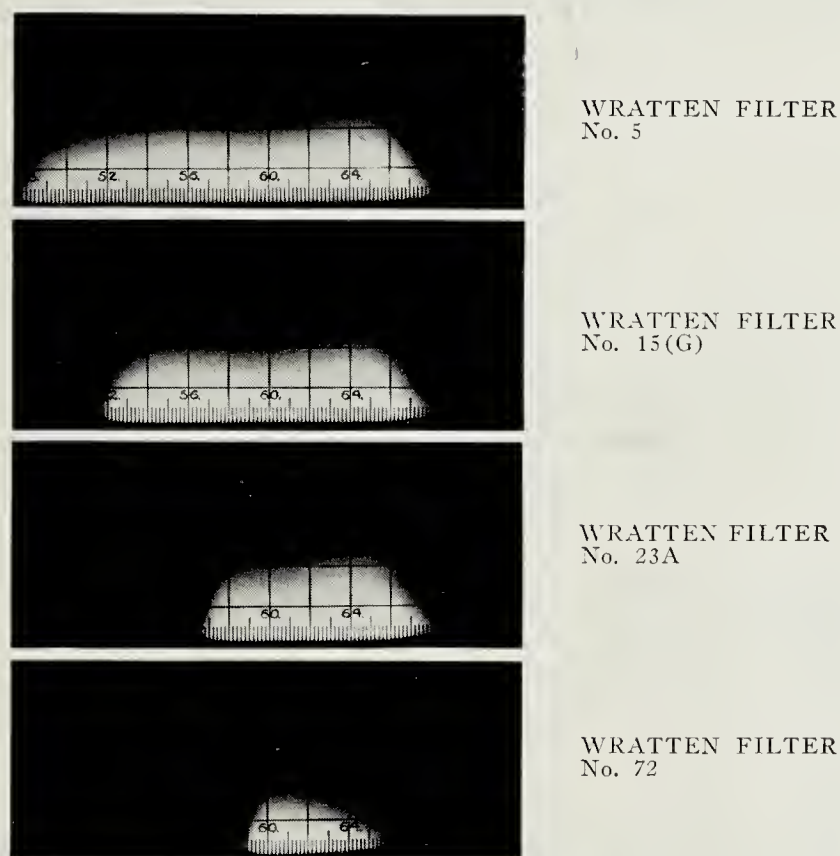


FIG. 36—Wedge spectrograms showing the effect of four Wratten filters on the distribution of spectral sensitivity of Eastman Super Sensitive Panchromatic Negative Motion Picture Film.

It will be observed that the absorption of the filter is almost complete for wave lengths below 450 millimicrons except for a weak narrow band at about 350 millimicrons which, however, is insignificant. For wave lengths greater than 450 millimicrons, the absorption is very small. This filter, then, absorbs nearly all of the violet and a portion of the blue. The effect of the filter on the distribution of effective sensitivity can be seen from a comparison of the upper spectrogram with the lower.

Figure 36 shows the distribution of sensitivity on Eastman Super Sensitive Panchromatic Negative Film, with daylight as the source of illumination, of four other widely used filters; namely, Wratten No. 5 (Aero 2), No. 15(G), No. 23A (E Red, light), and No. 72.

Filter Factors

Since a filter absorbs a part of the light, its use involves an increase in exposure corresponding to the proportion of effective light absorbed. The number of times the exposure must be increased when using a filter is known as the *filter factor*.

The filter factor depends on (1) the absorption characteristics of the filter, (2) the spectral sensitivity of the photographic material, (3) the spectral composition of the light by which the subject is illuminated.

For example,** should 95% of the total sensitivity of an ordinary (blue-sensitive) material lie in the blue and violet, and the other 5% in the blue-green, then a color filter which absorbs violet and blue completely but transmits blue-green will reduce its sensitivity to 5% of its original value. Thus, to obtain the same effect with a filter, the exposure must be increased twenty times, and the factor of the filter is accordingly twenty under these

conditions. Now, if this same filter is used on a panchromatic material which has 65% of its sensitivity in the blue-violet, 10% in the green and 25% in the orange and red, the total sensitivity of the material will be reduced only to 35% of its original value. The filter factor then in this case is approximately 3.

Tungsten light contains a relatively greater abundance of yellow, orange, and red light, and less violet and blue than daylight. Consequently, a larger proportion of the total effective sensitivity will be due to these colors, and a smaller amount to the blue and violet, than with daylight. Thus, with tungsten light the distribution of effective sensitivity with the hypothetical panchromatic material just mentioned may be blue-violet 30%, green 20%, orange-red 40%. A filter which completely absorbed blue-violet, but transmitted green and red, would in this case reduce the sensitivity of the material only to 60% of its original value, so that the filter factor in this case would be approximately 1.6.

From this it is evident that the factor for any given filter depends not only on the filter but on the sensitive material and on the light source. It is useless, therefore, to refer to filters as having any definite factor unless the sensitive material and the light source are stated also.

The filter factors for the Wratten filters commonly employed in motion picture work, when used with Eastman Super Sensitive Panchromatic and Eastman Super X Panchromatic Negative Films in sunlight, are given in the following tables in terms of *f* values.

In use, these tables are extremely simple. Suppose a given scene is to be photographed on Super Sensitive Panchromatic Film and *f*.5.6 is the proper stop to use for the exposure without a filter. We will suppose further that a No. 15(G) Wratten filter is to be used. Select in the first column under the heading "No Filter" the value *f*.5.6 and follow across the table in the line showing this value until the column headed "G Filter" is reached. At this point the value *f*.3.2 is found. This indicates that the proper stop

Super Sensitive Panchromatic									
No Filter	Aero 1	Aero 2	3N5	5N5	G or 23A	72	ND 0.25	ND 0.50	ND 0.75
2.3	2.0	1.8	...	...	...	...	1.7	...	...
2.8	2.5	2.3	1.4	...	1.6	Night	2.1	1.6	...
3.2	2.8	2.6	1.6	1.4	1.8	effect	2.4	1.8	...
3.5	3.1	2.8	1.8	1.6	2.0	filter	2.6	2.0	1.5
4.0	3.6	3.2	2.0	1.8	2.3	use at	3.0	2.3	1.7
4.5	4.0	3.7	2.3	2.0	2.6	<i>f</i> .2.3 to	3.4	2.5	1.9
5.6	5.0	4.5	2.8	2.5	3.2	<i>f</i> .3.5	4.2	3.2	2.3
6.3	5.6	5.2	3.2	2.8	3.6		4.7	3.5	2.6
8.0	7.1	6.5	4.0	3.6	4.6		6.0	4.5	3.4
11.0	9.8	9.0	5.6	4.9	6.3		8.2	6.2	4.6
12.5	11.2	10.2	6.3	5.6	7.2		9.3	7.1	5.3
16.0	14.3	13.0	8.0	7.2	9.2		12.0	9.1	6.7
22.0	19.7	18.0	11.0	10.0	12.5		16.5	12.5	9.3
Factor									
1	1.25	1.5	4	5	3		1.8	3.1	5.6

Super X Panchromatic									
No Filter	Aero 1	Aero 2	3N5	5N5	G	23A	ND 0.25	ND 0.50	72
2.3	2.0	1.8	...	...	...	...	1.7	...	...
2.8	2.5	2.3	1.4	...	1.6	1.4	2.1	1.6	Night
3.2	2.8	2.6	1.6	1.4	1.8	1.6	2.4	1.8	effect
3.5	3.1	2.8	1.8	1.6	2.0	1.8	2.6	2.0	filter
4.0	3.6	3.2	2.0	1.8	2.3	2.0	3.0	2.3	use at
4.5	4.0	3.7	2.3	2.0	2.6	2.3	3.4	2.5	<i>f</i> .2.3 to
5.6	5.0	4.5	2.8	2.5	3.2	2.8	4.2	3.2	<i>f</i> .3.5
6.3	5.6	5.2	3.2	2.8	3.6	3.2	4.7	3.5	
8.0	7.1	6.5	4.0	3.6	4.6	4.0	6.0	4.5	
11.0	9.8	9.0	5.6	4.9	6.3	5.6	8.2	6.2	
12.5	11.2	10.2	6.3	5.6	7.2	6.3	9.3	7.1	
16.0	14.3	13.0	8.0	7.2	9.2	8.0	12.0	9.1	
22.0	19.7	18.0	11.0	10.0	12.5	11.0	16.5	12.5	
Factor									
1	1.25	1.5	4	5	3	4	1.8	3.1	

(Continued on Page 12)

**These values have been selected for illustrative purposes only, and have no reference to any particular sensitive material or filters.

MOTION PICTURE LABORATORY PRACTICE

(Continued from Page 11)

for the scene when using the No. 15 filter is $f.3.2$. It should be borne in mind that the values given in these tables serve as a guide only. The filters listed in the table are those used most in straight exterior photography; filters for night effects and other special subjects are not included.

For all practical purposes the filter factor for the white flame arc is the same as for sunlight and that for the panchromatic carbon arc the same as for tungsten. The Movie-flood bulbs operate at a somewhat higher color temperature than the tungsten lamps in general use, but the difference is not sufficiently great to require a change in the filter factor. It is perhaps worth mentioning that the spectral quality of the light sources employed in motion picture work is frequently modified by the introduction of screens used for diffusion or for other purposes. Usually, however, such changes are not sufficiently pronounced to require a change in the filter factor. The character of daylight likewise changes from hour to hour and from one season to another, and is greatly influenced by atmospheric conditions. The color temperature of sunlight, for example, is lower than that of clear sky, and sunlight at noon has a higher color temperature than in the later afternoon or early morning. In general, however, these differences are not sufficient to alter the filter factor materially; that is, exposures correctly calculated upon the basis of the filter factor for sunlight will be within the latitude of the emulsion.

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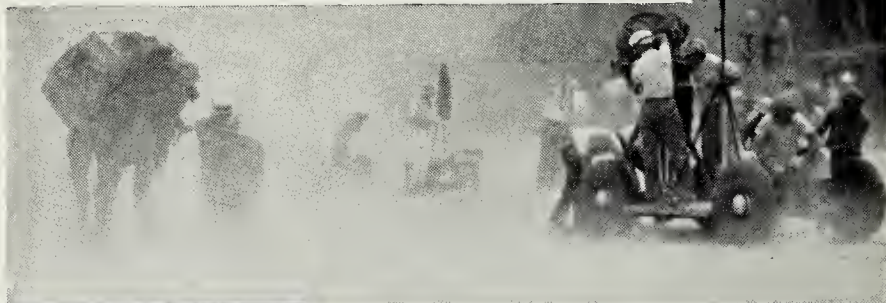
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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

WITH Old Man Winter howling around the door, and the thermometer hitting new lows, it seems time for our annual message anent the winter care of equipment. Somehow, it seems that before I get through thinking about warm weather oiling and conditioning of machinery and gadgets it's time to clean things up and put in that old thin winter oil.

One thing we mustn't forget during cold weather is the care of storage batteries. Those of us who use the lead-acid type of battery to drive cameras or sound equipment should make sure that these batteries are fully charged so that they will not freeze. A cold storage battery not only must be kept well charged, but it should be remembered that one cannot expect it to deliver as much current in extremely cold weather as it will in warmer conditions. For this reason, if much outdoor work is to be done, it is a good plan to have an extra battery kept on charge, or to carry a small charger so that the battery can be boosted during the night.

Harold Witt carries a gadget which allows him to charge batteries while riding in the luxury of Pullmans, and there may be others who do the same. It sounds like a good gag.

I think that most cameramen are aware of the care that should be given their motion picture equipment in the winter, but there is one thing I would like to suggest, and that is that the still equipment be given a smattering of the same care.

Most shutter equipment on still cameras is oiled with a heavier grade of oil than is good in cold weather. This holds true of focal-plane shutters as well as the best between-the-lens shutters such as the Compur, Compound, and others. Unless you are familiar with the innards of these shutters, however, I would most urgently suggest that you have them oiled by a competent camera repair man, because a little too much thin oil in a Compur has a most devastating way of flinging itself around and getting onto the lens elements by way of the shutter blades and diaphragm leaves.

As the shutter leaves close smartly, they are quite apt to flip a minute bit of oil off their tips as they come to rest. This oil will invariably land on the lens elements. So use oil very sparingly!

In the winter, when we are trying to get nice snow shots, nothing raises so much unadulterated hell with exposures as a sluggish shutter which drags open and shut, thus cancelling care in using a good exposure meter and selecting a filter. So if you are experiencing any erratic exposures in your still stuff—look for the trouble in a shutter oiled for summer conditions.

Several times in this column I have mentioned filters and their care. Recently I have been doing some more experimenting, and I've run across a pretty good way of protecting gelatine filters when there isn't a good glass filter to use instead.

You can make up a temporary filter which will give very excellent service over a considerable period, and it's easy to do. Here's how: Obtain a few 2-inch square slide cover glasses such as are used on the new Eastman and Argus projecting equipment. Thoroughly clean one side of each of two glasses, then lay these down on a clean

paper, *cleaned side down*. Place their edges almost together, and press a piece of good quality adhesive tape along the adjacent edges, making a little book. Then, being careful not to touch the bare gelatine filter with the fingers, slip it into place between the glasses, and press another piece of the tape along the opposite edges, holding the glasses together with care not to crack them. Then tape up the remaining ends or sides, and clean the outside surfaces of the glasses. This will make an emergency filter that can be used a surprisingly long time, and which can be cleaned.

There is an extremely clever gadget for assembling these slide glasses put out by the Argus people. It consists of a soft rubber folding device and frame through which the rubber, glasses and binding tape are passed, thus taping the whole rig together on all four sides at one fell swoop. It really is a slick affair, and it sells for only \$1.50. A box of 24 glasses, 12 binders, and 12 inside mattes (for 35 mm. film frames—not needed for filters) sells for seventy-five cents. Or if you feel opulent, they have a kit which sells for \$5.00 which includes material for several dozen slides (or filters) and they generously throw in the rubber folding gadget and frame. If you make miniature camera shots which you later wish to project on a large screen, you will want to investigate the above device anyway, and you can always use it to make up filters for experimenting.

And by the way—these glasses are sufficiently free from waves and striations so that they will cause no trouble when used as suggested, except possibly when used in connection with very long focus lenses. If you pick your glasses for filters with care, you should be able to get away with all but the most critical work.

If you want to go into this filter thing more thoroughly, you can even rig up a very simple scheme for testing glasses and the filters by means of polarized light. Nearly all cameramen now have Polascreens which can be used, but if you don't happen to have one, you can obtain a small sheet of "Polaroid" from the toy department of any good department store.

Before assembling a filter, you can check the glasses by placing them in front of a 60-watt bulb and looking at them through the polaroid sheet. Any strains will immediately show up. Of course, striations or waves can be seen under ordinary light.

It just occurs to me that one might be able to make his own polarizing filter by cementing a sheet of polaroid between glasses. I would suggest, however, that one take the selected glasses to an optician and have them ground down on a profiling or edging grinder to a round shape of approximately 2-inch diameter. These glasses could then be mounted in a bezel with a small handle and arranged to rotate for varying the polarizing effect. It's so well worth trying, that I've sold myself on the idea while typing this, and so that's going to be the next project after I finish the photoflash synchronizer I'm making up to play with.

Of course, it will be necessary to run tests to determine the factor of the polarizing screen, but that won't be hard. I'll do it by means of my minicam—thus practising one of the things I've been preaching in this column, to wit: that a small 35 mm. camera is a handy thing to have around, because one can run filter tests and the like on any of the 35 mm. film on the market, and do it more economically and easier than is possible with a cine camera.

So now I'll say "Goombye, please" until next month. A Happy and Prosperous New Year to you all!

Cinemabiography

CHARLES GEIS has been actively engaged in the photographic and motion picture business since 1916. After completion of his schooling in Beloit, Wisconsin, he went to work in the photographic department of the Yates Machine Company. Darkroom work was the first duty and later still camera operating, both in the field and studio. His next move was to join the Rockford Illustrating Company in a similar capacity, there he photographed numerous activities at Camp Grant. During the month of August, 1918, he came to Chicago and was employed by the Rothacker Film Manufacturing Company in the title room. Later a promotion followed to the camera department. He remained on the industrial department camera staff for several years until Rothacker assumed the old Kinogram Newsreel Midwest Territory. He was then placed in charge of the Newsreel Department. When the Rothacker Organization dissolved the Kinogram Company retained him as their representative in this territory. March, 1930, found him on the camera staff of Fox Movietone News where he remained for five years. During the 1933



Charles Geis

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World's Fair he was loaned to the Fox West Coast Studio Department to photograph process background and pictorial scenes at the Fair Grounds. Following his connection with the Fox Company he returned to industrial camera work and is at present free lancing for the various commercial picture producers in the central states.

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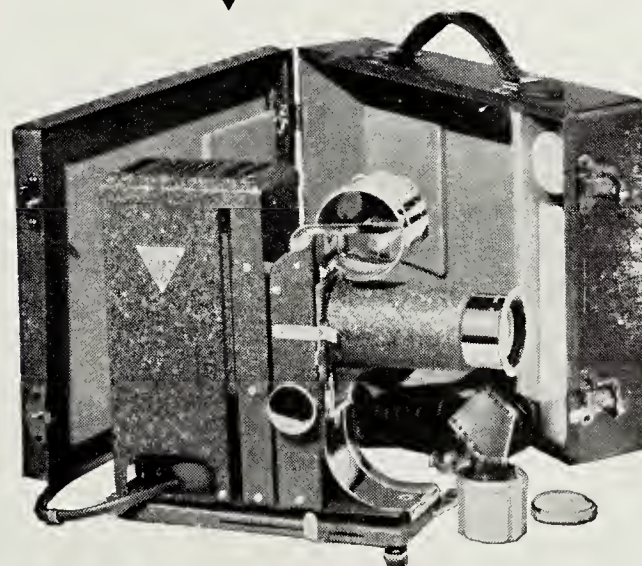
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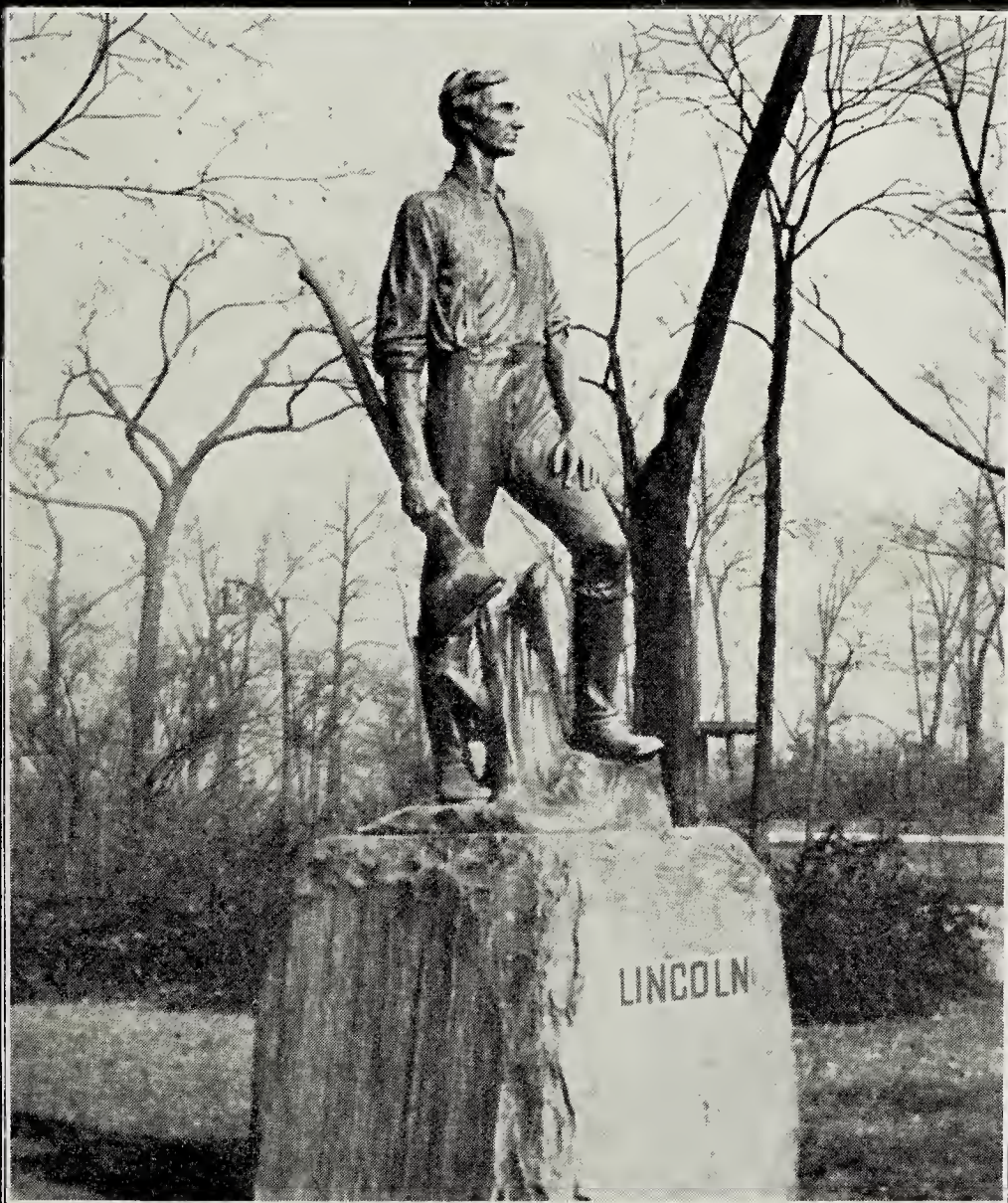
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Dinner Dance

ON the night of Saturday, February 5, 1938, some 300 members of Local 666, and their wives, sweethearts and friends, gathered in the north ball room of the Stevens Hotel in Chicago for what developed into not only one of the most enjoyable parties the local has ever held, but also one of the most successful. In fact, so enthusiastic were many of the folks present that they immediately made their reservations for the next dinner dance which will undoubtedly become an annual affair under the sponsorship of 666.

The office of the local has been swamped since the affair by people calling up to tell how much they enjoyed their evening as guests of the cameramen. From all the sources available, it appears that 666 has once again put over a program with credit for all concerned.

Upon arrival, guests were presented with souvenir programs which were grand examples of program lay-out and printing, and it is safe to say that 666 may well be proud of the showing made throughout the evening, as all details had been carefully and thoughtfully worked out in advance by the various committees in charge.

Each lady, in addition to her souvenir program, was presented with a nifty make-up outfit, matched for her complexion, whether blonde, titian, or brunette. These souvenir beauty aids seemed to meet with the hearty approval of their recipients.

Of course, one would expect to have a pretty nice dinner at the Stevens, but we were all surprised to find delectable tom turkey as the fare instead of the anticipated chicken. It was most efficiently served, together with all the usual trimmings, and many of the guests enjoyed the music of Hal Moore's orchestra as an accompaniment to the eatments.

We had visitors from a wide area of the country, including Paul Buress from Florida, and a number of men from New York.

Through the experiences of some of the committee members, guests were not annoyed by the common occurrence of the crashing in on our party by floaters, who make a specialty of this practice in the bigger Chicago hotels. Their game

was stopped at the outset by the simple but effective expedient of having a couple of Andy Frain's ushers in uniform at the door, to take up the tickets, punch them, and to issue the dinner checks. No tickee—sorry, no dancee, or words to that effect.

As each ticket was presented, it was punched with a regular blooming punch, which thus served double duty as a marker for the tickets, and became a peculiarly appropriate souvenir in itself.

The whole evening went off with a smoothness that spoke volumes for the hours of worry, thought, and pains taking trouble expended by those responsible for the affair. Everything moved along with the rhythm of well-regulated machinery, and not once throughout the evening did we see a sour puss or a disappointed guest. The crowd was there to enjoy itself, and this it did with a will.

Although everyone seemed to be having a good time, we saw only one or two who had partaken too freely of the cup that cheers. One of these had innocent fun in murmuring "whoopie" in a soft little voice once in a while, and the other guest, a middle ageish gent, was sound asleep in the early part of the evening, and quietly and firmly stayed that way right up to the bitter end. There were no fights, no arguments, no brawls. It was a gathering of gentlefolk out to enjoy an evening with the cameramen, and did they ever!

To enumerate separately each and every member of Local 666 who had a part in the staging of this great party would take up entirely too much room. It is safe to say, however, that without the sincere cooperation of the fellows who got out and sold space in the program, sold tickets, looked after a myriad details, and who generally took it upon their shoulders to talk up the whole thing, this last party might have had an entirely different outcome. (I seem to remember a previous dance that was a flop, financially and otherwise.)

But this last one was not a flop—far from it. It went over with a bang! Vi Braun has been busy answering the phone calls by people who had such a good time that they want to attend our next blow-out.

Oh, don't think for a minute that 666 made a fortune out of it, or anything like that. That wasn't the idea at all. But we didn't want to go into the hole, either. We didn't.

But this is a chance for the Local to get into the public eye in a very favorable light once in a while, and judging from the response, the public got an eyeful.

Not only the general public went to bat, we saw a large number of representatives of various businesses present. Among them we noted Tom Gibson of Brulatour, Charles Bass of the Bass Camera Company, Oliver of Victor Animatograph, and folks from many other lines of business lying outside close contact with the daily life of the cam-

(Continued on Page 7)

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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

IT would be interesting to know how many old tripods are lying around—discarded and taking up space, and to know how many of them could be fixed up and used for a long time.

Now that nearly all cameras are being driven by means of motors, the problem of rigidity is not nearly so difficult as when hand cranking is resorted to. Don't think that I'm saying you can use a rickety, rusty, and decrepit old tripod and expect it to perform as well as a new one. But many of these old tripods can be restored and used as extra equipment or they can be made into very serviceable baby tripods.

Verne Blakeley of the Chicago Film Laboratory demonstrated that a very efficient baby tripod can be made up from one of these old rigs. Verne says he got tired of seeing the old outfit lying around and he decided to see what could be done with it.

He had three legs welded up of angle iron and so designed that their tops bolted onto the tripod head and a steel rod, sliding in a hole in the welded part, acted as an extension.

The lower end of each rod was ground off to an edge for biting into earth or wood, and the rod held in proper adjustment by a wing headed set screw. The head was gone over carefully and cleaned up and adjusted, and practically all of the play taken out. Now Verne has a good baby tripod which cost only five dollars.

There is many a De Brie tripod lying idle because a lot of the boys don't know how to adjust them. Being French made, they are on the metric system. For this reason, take great care not to lose any of the small screws which hold this tripod together. Once lost they are very expensive to replace. In fact, to break a screw on a De Brie tripod can not only give all of the customary trouble caused by its removal, but it may be quite costly. If you have such a tripod, it can be adjusted to take out all play, but unless you feel you are a good mechanic, I would not advise fooling with the innards because there are several adjusting screws which have left hand threads. If you do not know their exact location, use great care in trying to turn them.

One trick which is a good one to know is the proper way to remove a screw, when it is not known whether it is right or left handed thread. Use a screw driver with a blade wide enough to reach across the full diameter of the head of the screw. See that the screw driver is in good condition, with the edges of the blade ground at practically right angles to prevent slipping. Then try turning the screw to the left—counter clockwise. If it does not start at once, use equal force in a clockwise direction. If it is left handed, the screw may then turn.

In any case, be careful, because you can twist even a quarter inch screw right in two with a screw driver. And when they break, they break down inside the hole and are always hard to remove, and sometimes they can only be removed by long, careful, and delicate work with acid.

The De Brie tripod uses left hand screws in the adjustment for play in both pan and tilt. The tilt screws can be reached by sliding a small cover plate in the main cover plate. It is not necessary

to remove the whole plate or the felt unless you want to work on or inspect the gearing, which is packed into a small space with typical French ingenuity. All parts work in grease, which should be renewed occasionally. It's a messy job, but not difficult. The tilt head uses a complete worm wheel instead of a quadrant as most tripods do. This worm wheel is arranged so that it can be turned to bring new teeth into mesh with the worm after wear develops. It is a very tricky adjustment and not to be advised except in case of necessity. These heads are mean to work on when it becomes necessary to take them apart. There are a great many small screws and parts, and they must absolutely go back exactly right, or you find yourself up to your neck in trouble. Most tripods are equipped with two small spirit levels to insure absolute level of the head and camera. These small levels can be high grade and quite accurate enough. In replacing levels, I would suggest you buy the best you can afford.

Spirit levels are simple, but if they are to be of much use they must be made very carefully. Many people do not know that the inside of the level is ground with a barrel-shaped bore. Of course this curvature is slight, but it must be there. Cheap levels have a bore with too great curvature—and consequently their accuracy suffers. As a rule, one should use a level with as long a glass as possible, as length combined with a slight curvature is essential for accuracy.

Those of you who are using 12 volt motors may profit by this little hint: Unless you already have an etched plate or the like attached to the motor, stating that it is for 12 volts D. C. only (or 32 or whatever) I strongly advise that you paint such a notice right on the motor. I heard recently of a 12 volt motor accidentally being plugged into a 110 volt line, the result being practically the complete ruination of the motor. Had there been a warning notice firmly attached to the motor it most probably would not have met this sad end.

So now I'll go down to the shop and proceed to fix my 12 volt motor to conform with the preaching in the paragraph above.

Adios until next month.

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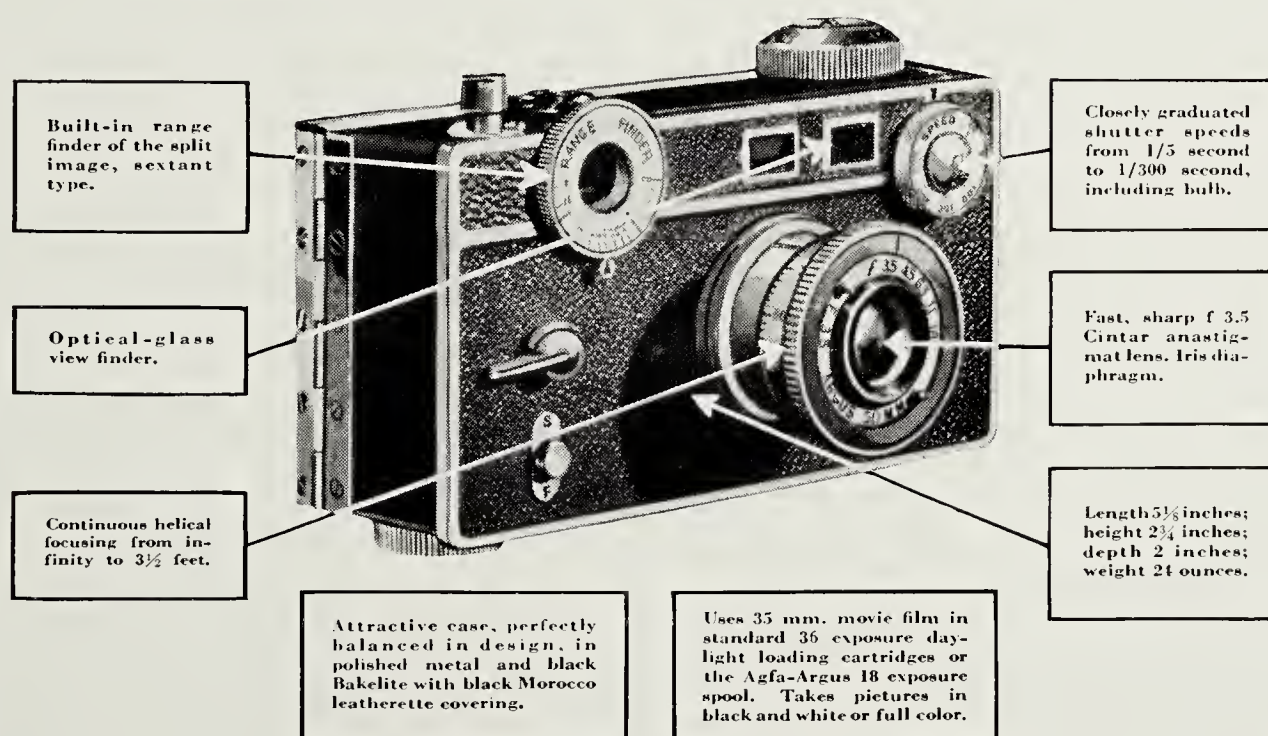
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THE ELEMENTS OF TELEVISION

By C. P. MEEK

Section XLI—The Condenser Discharging Device—The Two-Element Gas-Discharge Tube

The condensers in the time bases of the cathode-ray circuits must be discharged at very definite intervals. In the case of 240-line pictures shown at the rate of 24 pictures per second, the condenser which is responsible for the drawing of the individual lines must be charged and discharged 240×24 or 5,760 times per second. In that which controls the placement of each succeeding line just below the previous one, the rate of discharge must be once for each picture, or 24 per second.

It is quite obvious that this cannot be done by hand, and some mechanical or electrical switch must be adopted to bring about the required results. Whatever means is employed must be extremely rapid and accurate since it must operate instantaneously once every $1/5670$ th second. If such a switch in a television receiver is late by only $1/12,000$ th of a second, the transmitting devices will have passed over one-half of a line, and the received image will be distorted due to the lack of synchronism.

The most ideal devices to accomplish the desired result are operated on definite electrical principles. It is known that vacuum tubes as used in radios will respond to vibrations even higher than any of the frequencies which are needed here, and for this reason, some such electronic device is the answer to the problem.

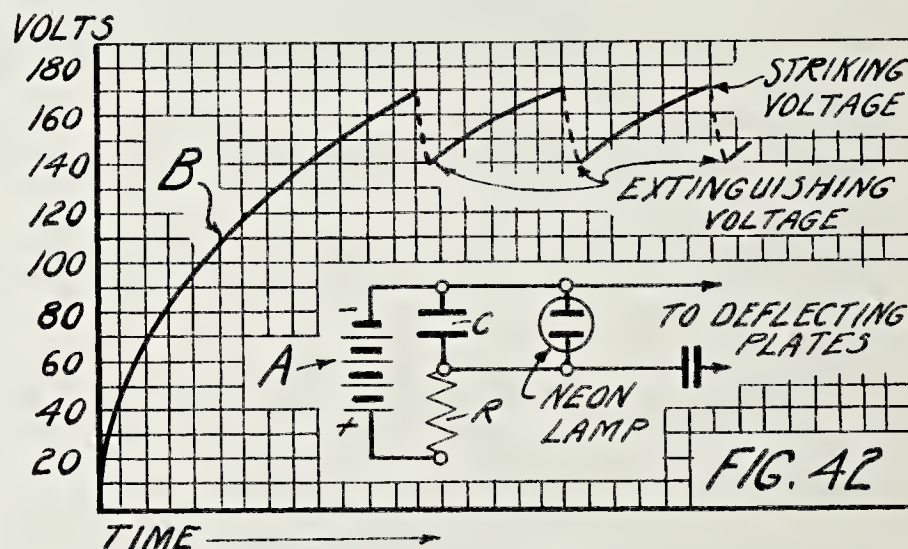
The ordinary hard radio triode can be used, but it has certain disadvantages which are absent in gas-filled tubes. These latter are available in many forms, some of them using neon, others helium, and still others mercury gas. They are all known as gas-filled relays, gas triodes, gas-discharge tubes or as *thyratrons*. The three-element mercury tube is more or less unsuited for television due to the fact that the lag in time between the *starting* and *extinguishing* voltages is considerable, and its operation at high frequencies becomes impossible. However, the tube using neon gas is most satisfactory, and the theories of operation of the various types of such tubes, i.e., two-element and three-element units, are applicable to all regardless of the gas used.

All gas-discharge tubes glow by what is termed *ionization* of the gas which is placed in the bulb. At a certain high voltage the gas becomes a conductor, the current being carried by what are termed *ions*. These are what remains of atoms after they have been banged about by collision until some of their electrons have been shaken off. With many of the negative electrons gone, the remainder is *positively* charged, and as a result the ion tends to go toward the *negative* pole of the neon tube, and in this manner a current is formed. (See also Section XIV.)

To break down the atom and cause the gas within the glass envelope to ionize, a certain amount of voltage must be applied across the two electrodes of the tube. With neon gas this is around 170 volts. The ions cannot be formed without this amount of initial voltage, but *once the conducting path has been established, the voltage may be reduced before the characteristic glow disappears and the flow of current ceases.*

This lag effect is important, and if such a lamp is connected as shown in the basic circuit of Figure 42A, some interesting functions will be performed. When the circuit

is first completed, the voltage across the condenser will gradually rise until it reaches the starting or striking voltage of the neon lamp. At this point the glow will begin, and since the tube is a low resistance conductor under these conditions, the condenser will immediately discharge through it. The discharge of the condenser causes its voltage to drop, and when this reduction has reached the *extinguishing* voltage of the neon lamp, the glow will cease and the conducting path will no longer

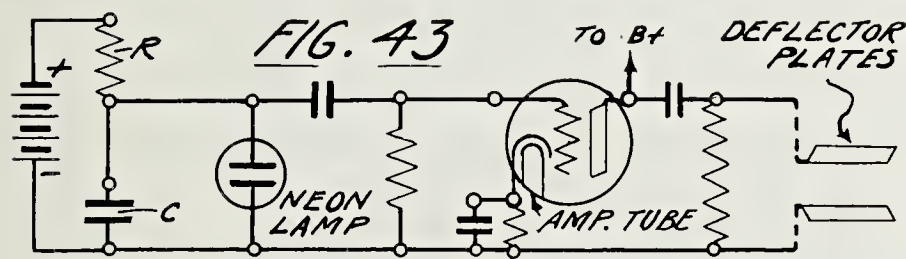


be available. The condenser will be free to charge again. This it does until the *starting* voltage of the neon is again reached, when the lamp will glow again, the condenser will discharge, and the lamp again go out for lack of sufficient voltage. The condenser will again charge and this will go on and on as long as the voltage is applied to the condenser circuit. All this is illustrated in the graph of Figure 42B which shows the voltage across the condenser as it accepts the charge, and as the lamp causes it to discharge. Here the solid lines indicate the period during which the condenser is charging, and during which the neon lamp is *not* a conductor. The dotted lines illustrate that portion of time during which the condenser is discharging and the lamp is glowing. Notice that the neon does not cease to glow after it is once started until there is a drop from 170 to 140 volts.

In applying this arrangement to the movement of the beam of a cathode-ray tube, the circuit is connected to the pair of deflecting plates and the values of condenser and resistance are altered until the proper values are secured to give a blink each $1/5760$ th second or whatever is required for the horizontal swing of the beam. Another similar circuit is connected to the vertical pair of plates and the values adjusted until blinks occur at the rate of 24 per second (or picture frequency) for the vertical pull. The horizontal condenser will then be automatically short-circuited by the neon lamp at the end of each line, and the electronic stream will be instantaneously dropped back to its starting position ready to move again across the fluorescent screen as the condenser recharges. During this time the condenser attached to the vertical plates will be gradually charging, and as each line is finished, a sufficient charge will be built up to cause the succeeding line to start at a point just below that of the previous one. After this has been done for the entire group of lines which comprise a complete picture, the condenser will have reached its full charge, and the neon lamp in its circuit will flash on. The condenser will be discharged, and the beam will fall back

to its original position at the start of the picture, the condenser will begin to recharge, and the process will go on and on and on.

This circuit has its disadvantages. One of these is that the amounts of voltage at the start and finish of the discharge are not sufficiently different. In small cathode-ray tubes a voltage between 200 and 300 is necessary to push the beam all the way across the screen. In larger tubes much more is required. Since the available change in voltage across the neon lamp is the difference between its starting and extinguishing voltage or, in the case of the one heretofore considered, roughly the difference between 170 and 140, or 30 volts, this must be amplified before being applied to the deflecting plates. This can be done by an ordinary tube amplifier similar to that shown in Figure 43. The output of the amplifier tube is applied to the deflector plates as shown.



Another disadvantage is that the voltage does not drop below 140 as shown in the curve of Figure 42B. This means that whenever the time base is in operation there is always a useless 140 volts tied to one of the deflecting plates of the pair, which will cause the beam to be *pushed* over to one side of the screen. This can be corrected by placing an equal *pull* on the other plate of the pair by inserting a bias battery in series with the lead to the plate. In practice, this is done by connecting a potentiometer across the high voltage source with the center arm to the plate. This is known as a *shift potentiometer* since its function is to shift the beam about on the screen. One of these is provided for each pair of deflecting plates within the cathode-ray tube, the term *vertical* or *horizontal* being applied according to the direction in which they cause the beam to shift on the fluorescent material at the end of the tube.

Another deleterious effect is also introduced by the difference in voltages between the two plates of a pair at various times. This will be considered in future sections.

DINNER DANCE

(Continued from Page Three)

eraman. There were people there who may have very likely never seen a motion picture camera in operation. There were undoubtedly people there who would give their eyeteeth for the chance of getting into the motion picture business. There were certainly a lot of people there who were in the business. The gathering presented a cross-section of the film game in Chicago, and many of those who could not be present in person were represented in the program.

Being a dinner dance, the floor was crowded at all times by dancers and there were times when a traffic cop could have done himself proud on the dance floor. However, with the grand turn-out for this affair, I doubt if next year's party could be more efficiently run.

Entertainment was lavish, and a wide variety of talent helped to keep the crowd amused. Dancers, and darn clever they were too, and impersonators, and comedians, and even a prominent aviator, added to the fun of the evening. A clever little entertainer did her stuff, to be followed by one of the greatest cowboy singing groups in radio, the Ranch Boys, who appear on regular NBC programs. You may remember them as the three who did their stuff in the bus in the Clark Gable-Claudette Colbert picture "It Happened One Night."

A crowd of pirates appeared and surprisingly showed that they not only had swell voices, but knew how to use them too. They had a couple of clever novelty dancers who demonstrated a few new kinks in odd dancing.

While we're on the subject of entertainment, we should not forget the Master of Ceremonies of the evening, Hal Totten, the well-known sports announcer. After efficiently doing his stuff as MC, he delivered a mighty fine talk on the newsreel boys, and what they mean to the theatre-going public.

Being an ex-newspaper man himself, he said that he felt that he was still one at heart, although he had moved on into radio work, and he spoke of the things that the newsreelers have done and are doing to mould public opinion. His theme, that the newsreel boys, through the truthful reporting of current events by means of their lenses, were the most potent men in the field of reporting, was well received by the crowd.



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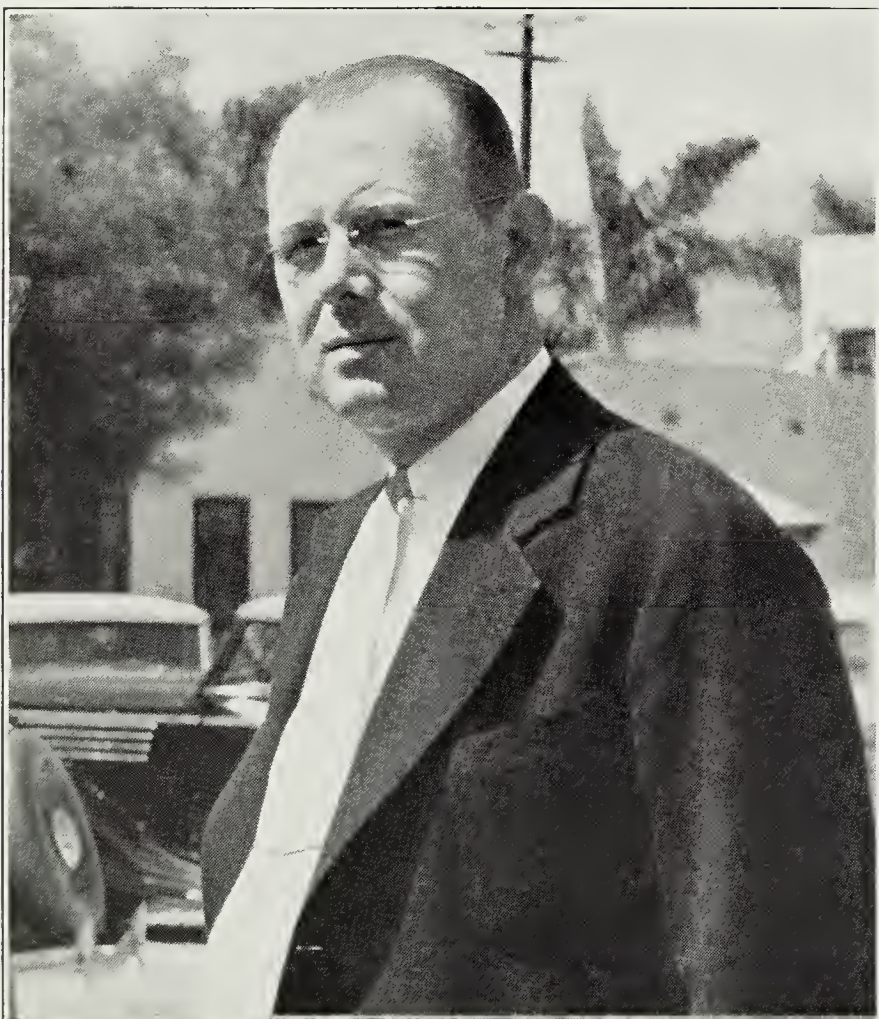
Cable Address ARTREEVE

Robert L. Miller Dies at the Coast of Heart Attack

Robert Lee Miller was born in Detroit, December 23, 1901, the son of Mr. and Mrs. A. G. Miller. He was educated in the grade schools of Detroit, was graduated from the High School of Royal Oak, a suburb to which the family removed in his youth, and attended the Massachusetts Institute of Technology.

In 1925, Mr. Miller built, in his Royal Oak residence, an experimental radio broadcasting station that was licensed as WAGM, utilizing his father's initials for the call letters. Later it was changed to WEXL and is now one of the most popular stations of metropolitan Detroit.

Mr. Miller left the field of radio to become associated with the Bell Telephone experimental laboratories in Detroit, and in 1930 joined Norman E. Wilding in Wilding Picture Productions, Inc., of which he was vice-president and general manager at his death.



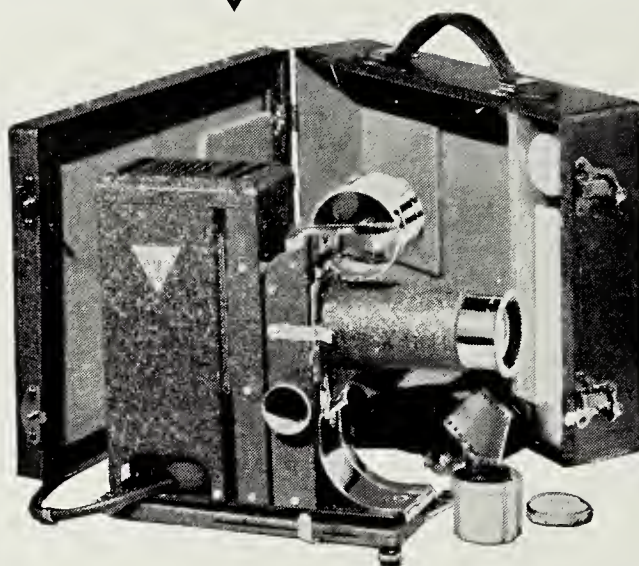
For the past two years, about half of Mr. Miller's time was spent as head of production with the Wilding west coast division, for the past eight months on the Selznick lot in Culver City. Mr. Miller for years had preferred airplanes to trains; he flew the round trip between Detroit and Hollywood at least a dozen times.

While under the shower in his Hollywood home at 653 North Crescent Heights Boulevard, Mr. Miller was taken with an unpredictable heart attack. His body was discovered by his wife; a physician, hastily summoned, could do nothing.

Survivors are his wife, Thelma; three children, Virginia, 14; Robert, Jr., 12; and Richard, 10; two sisters, Mrs. Henry Dawkins and Mrs. George Dwyer; a brother, William W. Miller, and his parents of Royal Oak.

The widow brought the body back across the continent for interment in Royal Oak.

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VI'S KRAX

"AFTER The Ball Was Over"—One of the lads lost his car and it was gone for two days, the kind police department found it for him right where he left it in front of the Stevens Hotel.

How about some pictures for the front cover of this here magazine.

Did all you lads and ladies behave yourselves at the "dance" on Saturday last, they tell me there were exactly 301 candid camera fans there, "Oh me, is my face red."

Ask the Cameraman from the north side of Chicago about the "Brulatour Service."

There's youth for you, those Andy Frain ushers, let me be the first to tell you they had the key to my room so that they could change into their uniforms. "Oh, dear."

Don't forget to look on the page where the Dinner-Dance picture is and you'll see me and if you can find me I'll have the first dance with you next year.

From the bottom of my heart I'm sorry that you out of town boys missed the party. It was a great success and I hope you can attend next time.

How about some pictures, boys.

Valentine greetings to you all.

CARBON ARC LIGHTING MEETS EVERY DEMAND OF THE CAMERA

Behind the scenes in the desert during the filming of Selznick International's all technicolor production, "The Garden of Allah," co-starring Marlene Dietrich and Charles Boyer. David O. Selznick, producer of the Robert Hichens play and book, and Richard Boleslawski, director, worked under incredible difficulties amid insufferable heat and raging sandstorms in order to capture the loneliness of the Sahara wastelands. Howard Greene photographed the all technicolor production, with Hal Rosson as photographic adviser.



The exceptional penetration of carbon arc lighting pierced the obscuring clouds of a desert sand storm in photographing this unusual scene.

This cool, silent and exceptionally fast light improves black and white photography and has proved a necessity for color.

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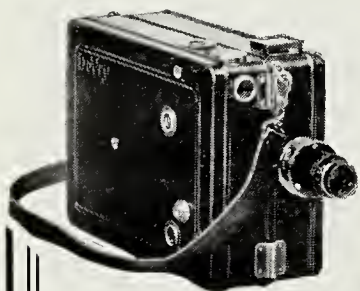
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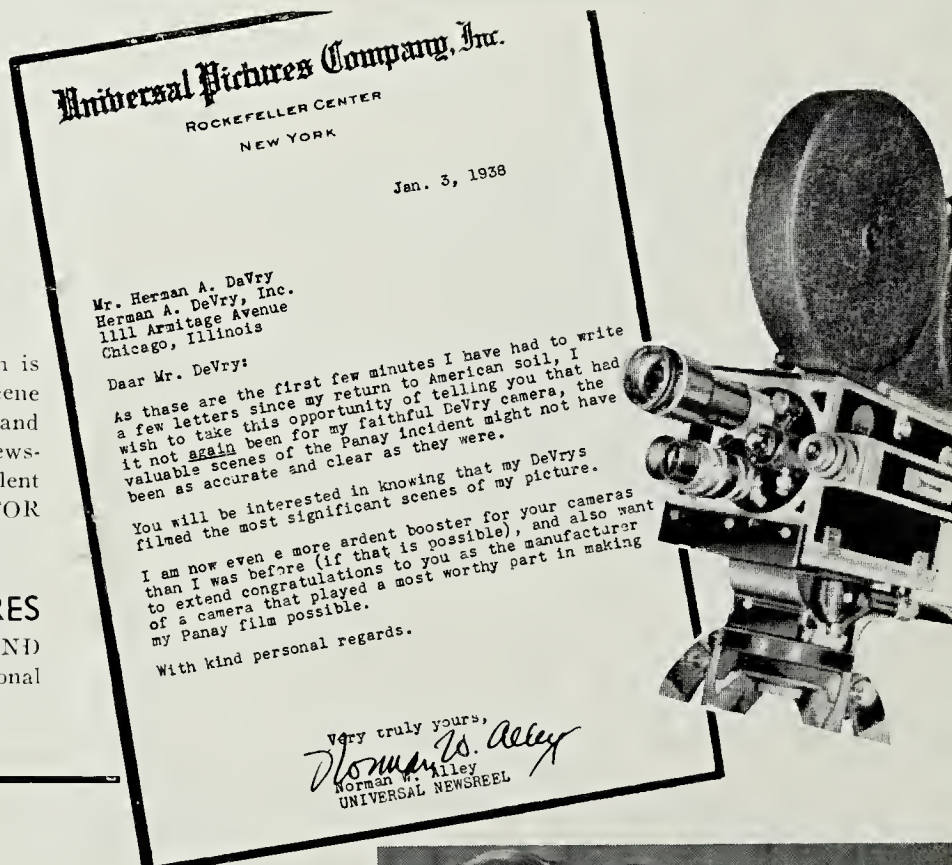
READY FOR ACTION!

WHEN A NEWSREEL STORY BREAKS . . . and action is rapid, tense . . . the cameraman must be ready. Every important scene and sequence sighted through your finder must register distinctly and clearly. That is why Norman Alley and many other wellknown newsreelers, explorers, and producers have chosen DeVry sound and silent cameras. THEY KNOW THAT DeVRY IS ALWAYS READY FOR ACTION.

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MOTION PICTURE INDUSTRIES LOCAL 666

DINNER-DANCE
STEVENS HOTEL CHICAGO
FEBRUARY 5, 1938

Prof. Brown
38-773

Motion Picture Laboratory Practice

TWELFTH INSTALLMENT

Orthochromatic Rendering

Filters may be used either for the purpose of correctly reproducing the brilliance of the colors of the subject or for raising or lowering the position of colors on the tone scale. The rendering of colors in the correct relative tone values as seen by the eye is termed *orthochromatic* reproduction. As used in this sense, orthochromatic (derived from the Greek *orthos*—correct, and *chromo*—color) is used in its true sense and has a meaning very different from that applied to the so-called orthochromatic materials, which do not give correct rendering but only an improved reproduction of color as compared with a blue-sensitive material.

For true orthochromatic reproduction it is necessary that the effective response of the photographic material to color correspond with that of the eye; in other words, that the effective spectral distribution of sensitivity correspond with the visibility curve. With the light sources commonly employed, it is necessary to employ filters if exact orthochromatic rendering is to be obtained. The filters ordinarily referred to as orthochromatic absorb the ultra-violet entirely and portions of the visible spectrum in the violet and blue and, in certain cases, the red, partially. Their absorption characteristics are, of course, selected in accordance with the spectral distribution of sensitivity of the particular material for which they are designed. It is, therefore, highly important to use the filter recommended by the manufacturer for the material.

Distortion of Orthochromatic Rendering

In practice, orthochromatic reproduction may not in all cases produce the most desirable, nor even the most nearly correct, photographic rendering of the contrast between the various parts of the subject as it appears to the eye. It must be remembered that objects are distinguished from their surroundings by virtue of contrast, which may be either tone contrasts (brightness differences) or contrast of color. Frequently, parts of the subject may differ very little in tone contrast; that is, the brightness differences are small, and yet they possess considerable contrast to the eye due to differences of color. The contrast, for example, between a bright red apple embedded in a cluster of green leaves is very striking to the eye. Actually, the brightness differences are small, and when photographed on a panchromatic material with a fully correcting filter (orthochromatic reproduction) the contrast between the red apple and the green of the leaves is very slight, and the two are not properly differentiated in the negative. Again, with perfect orthochromatic rendering, the yellow of ripening grain, or at times the foliage of trees, or roofs, against a blue sky will be reproduced with so nearly the same brightness that the dividing line between the two is almost indistinguishable.

Since color contrasts can be reproduced in black and white only as differences in brightness, it is evident that with any subject in which contrast is dependent upon color rather than on brightness differences the visual effect can be reproduced only by producing a contrast in tone which actually is nonexistent in the subject. This can be accomplished by using a filter which will absorb more of the light from one color than the other, thus depressing the brightness with which that particular color will be reproduced in the negative. Thus, in the example given previously, if a filter which transmits green but partially absorbs red is used, the green leaves will be rendered lighter

than the red apple, and the contrast necessary to differentiate the one from the other will be produced. With a deep orange filter which partially absorbs green but transmits red, the apple will be reproduced lighter than the leaves. Consequently, to render a color lighter than it would appear with orthochromatic reproduction, a light filter which selectively *transmits* light of the same color must be used, while to render a color darker it must be photographed with a filter which selectively *absorbs* light of the same color.

The choice as to which color should be reproduced lighter depends upon their relative brightness to the eye. As a general rule, when it is necessary to resort to color distortion, the warm colors will be made lighter and the cool colors darker than with orthochromatic reproduction. The extent to which a particular color must be enhanced (or depressed) depends so completely on individual circumstances that no definite rule can be given; only judgment and experience can enable the cameraman to select the filter required to produce the degree of contrast desired.

Filters in General Use in Motion Picture Production

Filters are seldom used with Eastman Motion Picture Negative Film on account of its limited color sensitivity and the increased exposure they would require. The greatest latitude in the use of filters is obtained with Eastman Super Sensitive, Super X, and Background Panchromatic Negative Motion Picture Film, due to the high color sensitivity. The sensitivity of these films for the longer wave lengths is such that with tungsten illumination a satisfactory rendering is usually obtained without a filter, and it is, as a matter of fact, quite rare that a filter is used in motion picture production in interior scenes illuminated by tungsten.

While more than 100 Wratten filters with widely varying characteristics are available, for general purposes the requirements of the cameraman are satisfied by seven. Several other filters are useful for special effects but need not be included in the cameraman's kit. The seven general-purpose filters which fill practically every ordinary requirement of motion picture photography with Eastman Super Sensitive Panchromatic Negative Film are the Wratten Filters Nos. 3 (Aero 1), 5 (Aero 2), 3N5, 5N5, 15(G), 23A, and 72. Each of these will be discussed in some detail.

No. 3 (Aero 1)

This is a light yellow filter and its spectrophotometric curve (Figure 37) shows almost complete absorption up to a wave length of 440 millimicrons, so that it transmits most of the visible spectrum. The transmission in the

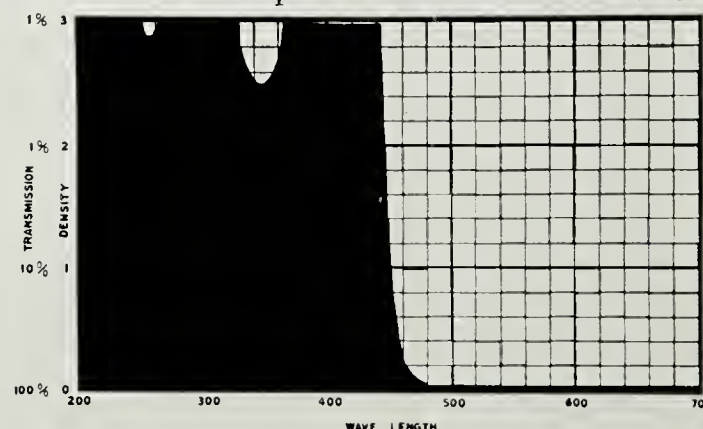


FIG. 37—Spectrophotometric curve of the Wratten No. 3 (Aero 1) Filter.

ultra-violet may be ignored. This filter is used only where a small amount of correction is required, or when the increased exposure demanded by other filters prevents their use. While its multiplying factor on Eastman Super Sensitive, Super X, and Background Panchromatic Negative Film is 1.25 for light of daylight quality, the exposure latitude of these materials is such that it can be used successfully without increasing the exposure.

No. 5 (Aero 2)

This is a somewhat deeper yellow, having a factor of 1.5 on Super Sensitive Panchromatic Film and differing from No. 3 in absorbing appreciably more of the blue-violet. It transmits (Figure 38) only beyond 480 millimicrons. Due to its blue-violet absorption it reduces the brightness of the sky, causing it to appear darker in the

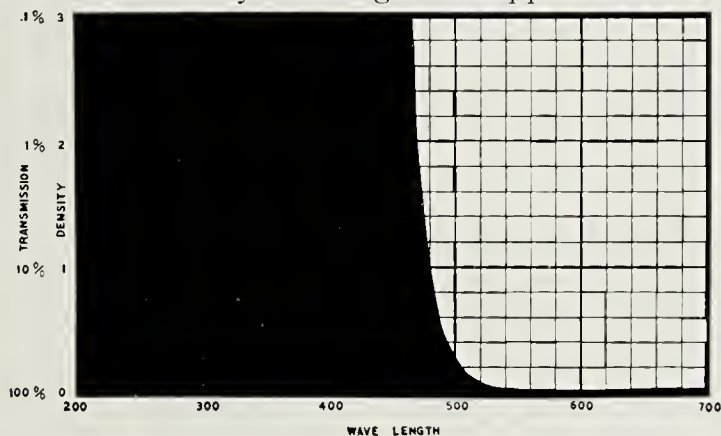


FIG. 38—Spectrophotometric curve of the Wratten No. 5 (Aero 2) Filter.

print, which, in most cases, results in an improvement in picture quality. This filter is quite adequate for general exterior photography. It does not alter the quality of normal panchromatic make-up. The factor on Eastman Super Sensitive, Super X, and Background Panchromatic Motion Picture Negative Film is 1.5.

Nos. 3N5 and 5N5

These two filters are No. 3 and No. 5, respectively, to which have been added a neutral density filter of 0.50 (transmission 32%). The neutral density filter increases the exposure approximately three times, so that the filter factors on Eastman Super Sensitive, Super X, and Background Panchromatic Negative Film, in daylight, become four and five for the Nos. 3N5 and 5N5 filters, respectively. The increased factors make possible the use of lens apertures of the order of those employed for interiors, when photographing exteriors for which the correction obtained with the No. 3 or No. 5 filter is sufficient. In this way the increased depth of field brought about through the use of smaller apertures is avoided, and the image quality of exterior scenes is more nearly comparable with that of interiors. These combination filters are particularly useful in scenes in which the illumination is high and the subject contains highly reflecting surfaces as, for example, street scenes, open desert, and the like.

No. 15(G)

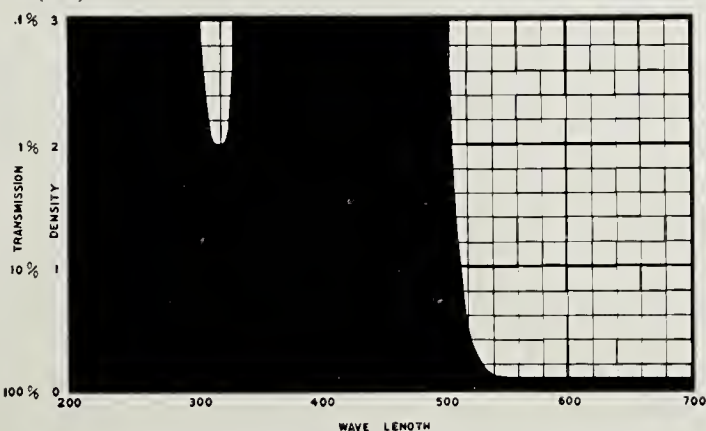


FIG. 39—Spectrophotometric curve of the Wratten No. 15(G) Filter.

This is a strong yellow filter which absorbs the blue and violet entirely, and a portion of the blue-green, the absorption extending to a wave length of 500 millimicrons. (Figure 39.) This filter is used where it is necessary to reproduce blue darker than with the No. 5. The slight increase in contrast obtained with this filter makes it very suitable for open landscape work where the space devoted to the sky is considerable. The filter darkens the sky, bringing out clouds, and the foreground stands out in better relief. It is useful also for scenes over water. The water is darkened and the contrast between it and objects on the surface is increased. The factor on Super Sensitive, Super X, and Background Panchromatic Motion Picture Negative Film is 3.

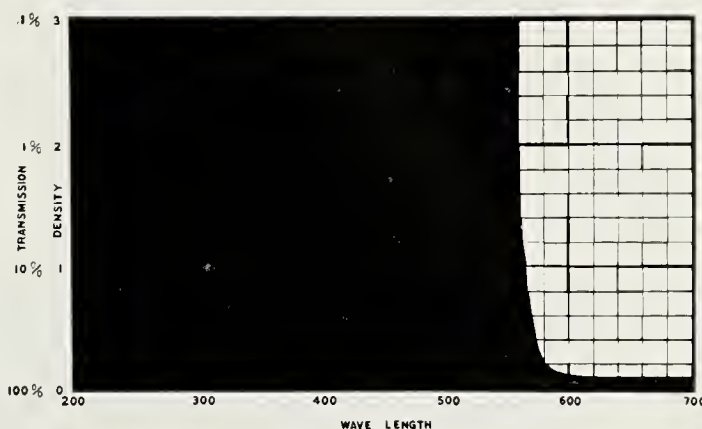


FIG. 40—Spectrophotometric curve of the Wratten No. 23A Filter.

No. 23A

This is a light red filter which absorbs the blue-violet and most of the green; the absorption being practically complete for all wave lengths less than 560 millimicrons. (Figure 40.) The transmission of this filter, therefore, lies wholly in the yellow-green, yellow, orange, and red. It is particularly useful in scenic and cloud effects, as well as for seascapes. A dark sky is produced without lightening the foreground of the average subject to an objectionable extent. The normal panchromatic make-up is lightened slightly. The factor on Eastman Super Sensitive and Background Panchromatic Motion Picture Negative Film is 3; on Eastman Super X Panchromatic Motion Picture Negative Film, 4.

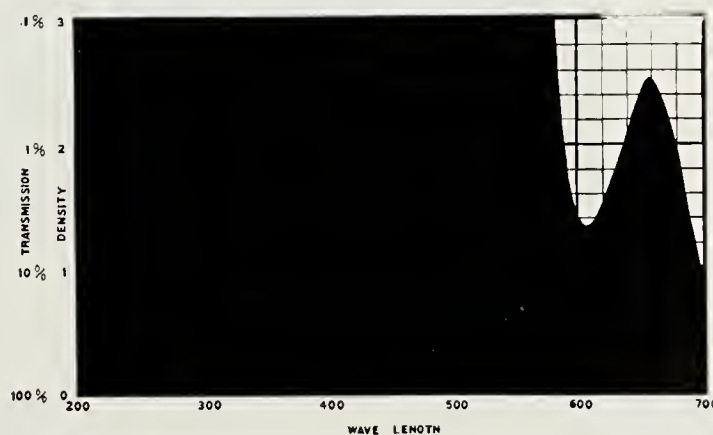


FIG. 41—Spectrophotometric curve of the Wratten No. 72 Filter.

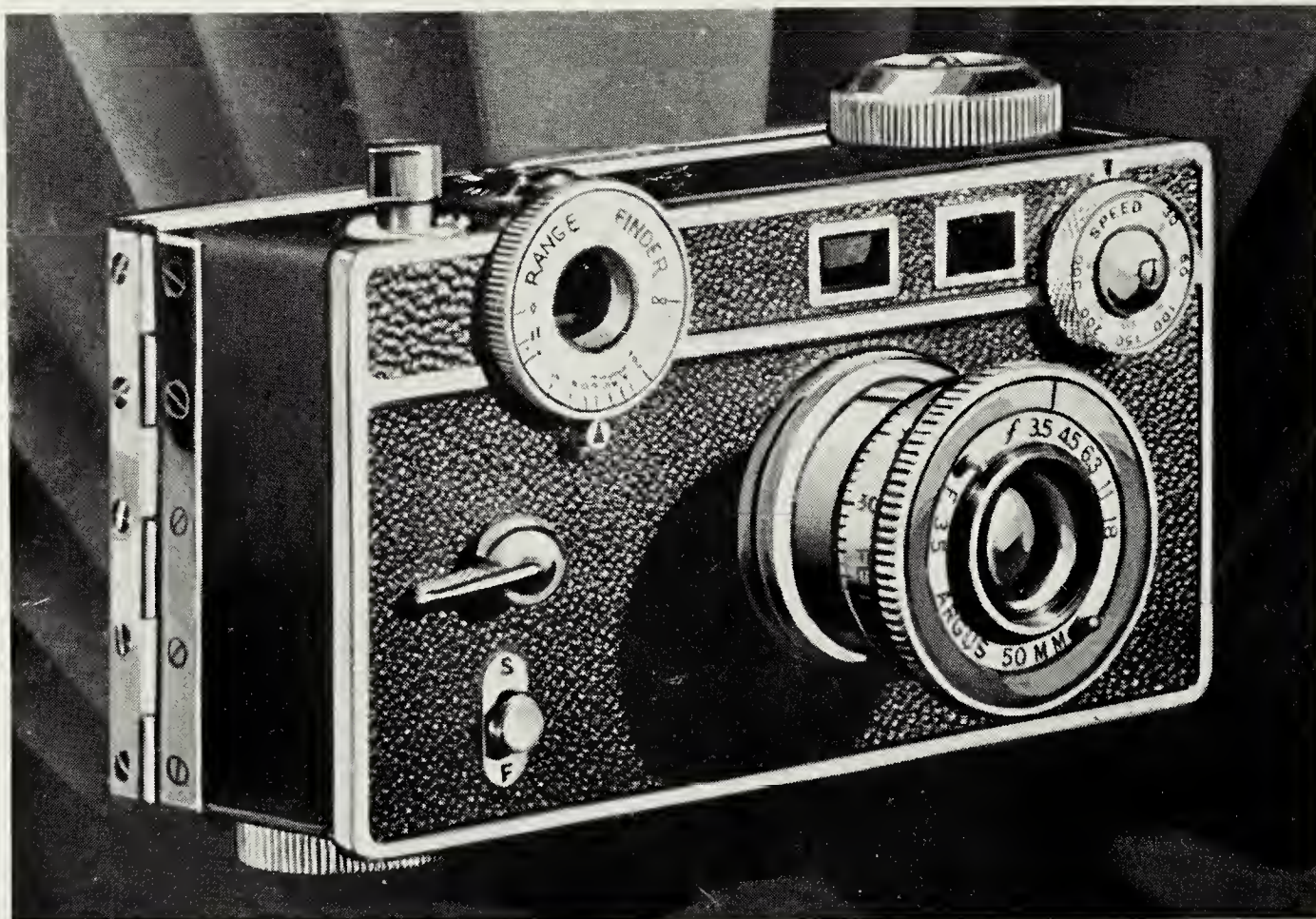
No. 72

This is a red filter used almost exclusively for producing night effects by daylight. The night effects produced by means of this filter are more natural than when made with heavy neutral density filters or by the simple expedient of underexposure. The spectrophotometric curve of this filter (Figure 41) shows complete absorption up to a wave length of 590 millimicrons. As Eastman Super Sensitive Panchromatic Negative Film is comparatively insensitive beyond 660 millimicrons, the effective sensitivity is for all practical purposes confined between the wave lengths 590 and 660 millimicrons. It is recommended that this filter be used with Eastman Super Sensitive Panchromatic Negative Film at full aperture; that is, *f*.2.5 to *f*.3.5.

The Argus Model "C"

THE new All-American ARGUS camera Model "C" is the latest contribution of International Research Corporation to the field of photography. It is a miniature type 35mm. camera of entirely new and novel design. Built to high precision standards by the makers of the first All-American miniature camera, this new advanced model incorporates the additional features which the public has demanded, at a price within the reach of all.

The beautifully proportioned and perfectly balanced case is exquisitely trimmed in gleaming metal and polished plastic with rich black morocco leatherette covering. The striking beauty of the camera is enhanced by the use of diamond turned fittings of velvet smoothness. The inner case is of the increasingly popular plastic mould insuring perfect working precision with tough resilient strength and sturdiness while avoiding excessive weight. It is of handy compact size measuring $5\frac{1}{8}$ inches long, $2\frac{3}{4}$ inches high and 2 inches thick, weighing only 24 ounces.



The use of the CINTAR f3.5 lens necessitates accurate focusing and to meet this problem the Argus Model "C" is equipped with a built-in range-finder. The view finder and range-finder eyepieces are placed side by side in a convenient position at the back of the camera. The optical view finder has a perfect infinity focus. The range-finder is of the split image sextant type and is built into the case body, making it an integral part of the camera where it is free from knocks or danger of breakage. Focusing the range-finder is accomplished by a conveniently located knurled control knob. The image appears in full size with exceptional sharpness and distinction.

The film is advanced by a large and easily accessible winding knob and exposures recorded by an automatic counter. Any type of 35mm. double perforated film may be used in either 36 exposure daylight loading cartridges or the new Agfa-Argus 18 exposure spools. The camera is especially adaptable to all type of color work.

The Model "C" is supplied with the Argus CINTAR f3.5 50mm. lens as standard equipment. This new triple

anastigmat lens is extremely fast and sharp providing negatives that will stand enormous enlargement. The lens is fully color corrected and has a circle of confusion of $1/2000$ inch on axis. It is equipped with a front operated iris diaphragm. The entire objective system moves as a whole in a helical mount and focuses from infinity to $3\frac{1}{2}$ feet. Additional spacer tubes for lengthening focus will be available for copying and close-up work. With the latest ultra speed film this 3.5 lens is adequate for every occasion without the loss of definition often apparent in larger aperture lenses.

The lens is quickly interchangeable and a series of different type lenses are to be available as additional equipment. The lens front mount is threaded to accommodate a new series of filters which screw into place. A new enlarger will also be available on which the standard f3.5 lens is used.

The Model "C" MICROMATIC shutter is of entirely new design and construction. It has a range of ten speeds from $1/5$ second to $1/300$ of a second including "Bulb."

One-fifth of a second is the slowest speed which is practical for making exposures with camera held in hands. Other slower speeds are obtained for tripod or rest position by "bulb" setting. The shutter is of very rugged construction with few moving parts and a simplicity that insures dependable operation. It is located directly behind the lens and permits the advantage of interchangeable lenses. The location and operation is similar to the professional type movie camera. Its wide range and simplicity of operation will be welcomed by the most exacting camera fans. The controls for focusing, range finding and shutter operations are placed at the finger tips when holding the camera in a normal position.

The ARGUS Model "C" was designed and produced to fulfill a long felt need for a versatile camera suitable for every type of photography from laboratory research to the candid amateur. It will be welcomed by travelers, doctors, dentists, scientists, industrialists, news reporters, advanced amateurs and camera fans, engaged in all types of work.

Cinemabiography

HAROLD A. WITT, Sound Technician, was born in Chicago, received training in Electrical Engineering at Lane Technical High School and the University of Wisconsin, following which he worked for the Commonwealth Edison Company in Chicago. In 1926 and 1927 he built and operated various stations in the middle-west, owning and operating Station WRRS, later sold to Journal News of Racine, Wisconsin. In 1928, returned to Chicago to work as Radio Operator for WLS until the advent of sound pictures. He was recruited by United Artists as a Sound Technician working on such pictures as Alibi, Bulldog Drummond, Whooppee, Condemned, Abraham Lincoln, with such stars as Mary Pickford, Douglas Fairbanks, Ronald Coleman and Joan Bennett in many feature pictures and short subjects. Left Hollywood in 1931 for the Industrial Picture field with Wilding Pictures in Detroit. While in Detroit became the owner of a Stinson four passenger cabin plane which was used extensively until he finally had his wings clipped when he became a Benedict.



Harold A. Witt

The Chicago World's Fair introduced him to the Newsreel business as a Sound Technician, which has proved of

CINEMA DIGEST

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Rates 50 cents per line—minimum charge one dollar per insertion. For Sale—For Rent—Wanted—For Exchange—Etc.

FOR RENT—B. & H. silenced camera with 110 volt A. C. sync. motor or 12 volt motor with battery, fast lenses complete equipment, apply Cinema Digest, 327 S. La Salle St., Chicago, Ill.

FOR SALE—DeVry hand camera, good condition, apply Cinema Digest.

FOR SALE—Camera motors, polo screen holders, any camera. Doc Gantz, Local 666, Chicago.

WANTED—To buy November 1936 copy of Cornet Magazine. Cinema Digest.

WANTED TO BUY—Used Moviola in good condition reasonable. Apply Cinema Digest.

FOR SALE—By owner, Complete Akley Camera, with 2", 3", 4½", 6", 12" Lenses, Akley Tripod, 10 Magazines, Carrying Cases, etc. Write J. C. Adams, Midwest Bldg., Okla. City, Okla.

interest especially with stories of the caliber of the Memorial Day Riot in which he participated as Sound Technician for Paramount Newsreel.

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Silenced movement—Unit I shuttle. Lenses: 40 MM Zeiss F:2.7; 50 MM Zeiss F:2.7; 80 MM Zeiss F:2.7; 150 MM B & L F:4.5 — One 1000 ft. and two 400 ft. Magazines — 110 V. AC Sync. Motor — All accessories — Excellent Unit for Production Work.

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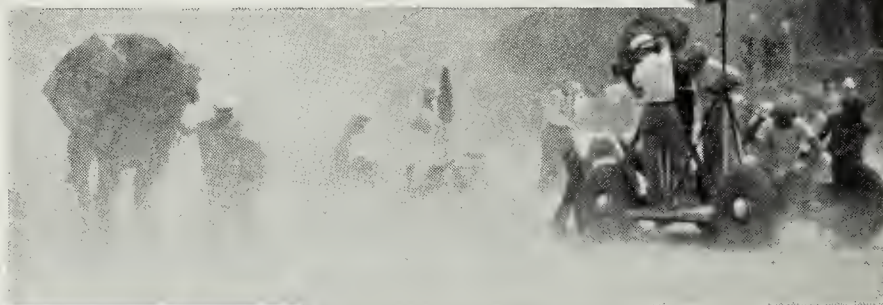
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SOCIAL SECURITY ACCOUNT

In about 6 months from now, the Social Security Board expects to be able to tell you the amount of wages credited to your social security account; that is, the wages so far counted toward benefits for you under the old-age insurance provisions of the Social Security Act. The Board has just issued an announcement to this effect.

Why can't you find out sooner? Thousands of workers have written to the Board asking for the information now, and the Board would gladly tell them if it could. But the answer cannot be given yet because this is the world's biggest bookkeeping job, and it takes time to set up thirty-odd million ledger accounts. It would take time in any case, but in this particular case it takes more time because the Social Security Board begins its part of the accounting job only after the Bureau of Internal Revenue has finished its part.

What must happen, between the time you receive your social security account number and the time you can find out how your account stands, is this:

The wages you receive on jobs covered for old-age insurance purposes—the wages which are therefore to be posted to your social security account—are reported first to the collector of internal revenue by your employer. He reports to the collector the social security taxes he is turning over to the collector for himself and for you, and he reports the wages he has paid you. Then those reports go to the Bureau of Internal Revenue in the Treasury Department at Washington.

The Bureau of Internal Revenue has to examine each and every figure in each of those reports, from several million employers and for thirty-odd million workers. Those figures must check with the amount of tax money turned in by each employer. This is done to make sure that the employer has paid in all the taxes due, both from his employees and himself.

This is a big job, and it must be done by the Bureau of Internal Revenue four times a year. Then the Social Security Board, or rather its Bureau of Old-Age Insurance, must take the wage figures from the wage reports and enter them on thirty-odd million social security accounts. That is another big job, and it is done only after the Bureau of Internal Revenue has finished its part of the work.

Posting is now under way in the Bureau of Old-Age Insurance of the Social Security Board, however, for the

wage records that have been turned in from nine States, and will be pushed forward as fast as the Social Security Board's accounting force with their bookkeeping machines, can do the work.

Your social security account is kept on a ledger sheet, with your name and social security number at the top. There is a column for your wages and another column for the identification number of your employer. Every 3 months from January 1, 1938, as long as you are employed on any job that is covered by old-age insurance, a new figure will be added in the wage column on your ledger sheet. It will be the figure showing the total amount of wages you have received during those 3 months from your employers on such jobs.

This will mean, thereafter, that you can find out, perhaps at regular times, just how your account stands. But this will not be possible until after next June.

Your social security account is a record of wages, not a record of taxes, because old-age insurance benefits are based on the wages you receive in jobs covered under the Social Security Act. These are of course the same wages upon which you pay taxes. Therefore you can tell, from the amount of wages credited to your social security account, the amount of taxes paid for you, because the amount of tax should be 1 per cent of your wages. Your employer matches this, and turns over both your 1 per cent and his 1 per cent to the Bureau of Internal Revenue.

As of January, 1938, employers liable under the unemployment compensation law will be required to make contributions quarterly rather than monthly as previously prescribed. Employers who prove delinquent, however, may be required to make monthly contributions.

The amended regulations on contribution reporting states that contributions will be due on or before the last day of the month following the three months' period for which payment is made. Concerns becoming liable in any year are required to pay as of January 1st of that year. Employers who voluntarily elect coverage are liable for contributions as of the date they elect.

The rate of contribution for 1938 will be 2.7 per cent of the wages payable. Proper report forms and instructions for making the first quarterly payment for 1938 will be received next month by all employers registered with the Division.

The midwinter meeting of the General Executive Board of I.A.T.S.E. was called to order by President George E. Browne on February 10th at San Antonio, Texas.

A resolution was passed to assume jurisdiction over the 8 and 16 m/m motion picture field where pictures in this classification are made for commercial purposes. If such films are made or shown anywhere for profit, direct or indirect, I. A. cameramen and projectionists would have to be used effective March 1st, this embraces all industrial films the contention being that if an advertising film is shown in a salesroom it technically and theoretically is for purposes of profit.

The International Alliance Theatrical Stage Employees whose membership now numbers 60,000 will increase this amount to 100,000 by taking control of all workers in the film industry, including actors, directors and script writers. The International now includes cameramen, projectionists, sound technicians, scenic artists, carpenters, laboratory workers, make-up artists and exchange employees. The I.A.T.S.E. is the parent of theatrical organization and the strongest, therefore these people should belong to this organization.

Screenings, Thither and Yon

By ALMA MAE BUTLER

THERE'S a certain street where often I wend my way. Not one of those brilliant thoroughfares where pampered, little darlings strain at the end of a leash. Not a narrow, city canyon where a slit of sky determines the night or day. It's that inscrutable five or ten-block stretch of stark want that contributes to the growth of a metropolis as much as an extra mile of sidewalk adds to its outer limits. Hopeless, unbridled, forlorn; clutching like some half-clad waif to the city's strong, maternal breast—the street that only the tourist seeks. Townsfolk ignore it with scorn.

A second-rateness is everywhere. Trucks and trolleys clatter by, screeching at pushcarts and hounds. Derelicts shuffle past, giving you a furtive once-over, to make certain their wiles of supplication fall only on philanthropic soil. Disregard for their well-practiced pleas emits no particular disdain, for they merely carry on searching for cigarette butts until another simple soul comes along. The street has no voice in the dailies. Mrs. So-and-So poured at tea.

Hundreds of dismal doorways offer miserable asylum and the dispensation of this and that. Three brass balls over Uncle Moe's Pawn Shop; ukeles and watches and pistols. Taverns with rubber plants to shut out the sights. Burlesques; old clothes and book stalls. Zephyrs of hamburger and onion from the Busy Bee. A shave for only a dime. Wistful, little faces flattening cherubic noses against cherry-pie window panes. Footprints in the pavement lead to a murky place. The sign says "Jesus Saves."

And over all, violet shadows from old gables cast a protective shroud—like an old mother, humble and tired, pleading for her wayward young.

Little Patrick lives in that street. Patrick sells papers to help his household provide for an orphaned three. Their one-room menage looks out upon bare, brick walls of the tenement to the north—one of those places where the smells of cabbage mingle with the dankness of miserable halls.

There's a charming, aged couple in that street. Their bakery is one of those old-fashioned places, reminiscent of the early nineties, where a sly, little, tinkling bell announces one's comings and goings. The huge showcase with ornamental legs is what attracted me that first time I entered to browse, but the legends of the two who have watched the deterioration of the street is what draws me again and again.

Not long ago a few guests helped me clear away the after-dinner debris. Thorough acquaintance with hunger has developed my frugality, it seems. Naturally, I was somewhat affected to see perfectly good food thrown out, knowing well that not far off were human beings who had nothing to eat. But the next evening I squared it with my soul by searching for Patrick and taking him home for the purpose of cramming his empty holes.

Many of us look to a new hat to cure the perennial dumps. Some swear by sulphur and molasses as a good holder-upper till Spring. But to me—a jaunt down this street, with wide-open eyes, is all the tonic one needs. Sordid; yes, but revitalizing,

strange as it may seem, for right at that moment you might be kicking at all those comforts at home, when evidence is at your feet that thousands about would take half and call it Paradise now.

THE AMATEUR'S WIFE

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Camera Page Editor, Herald and Examiner,
Chicago, Ill.

Dear Sir:

Ever since you started a section for amateur photographers, my husband has become one. And if that's what amateur photographers are like, I'll take vanilla.

Before we were married, he told me that he was content to just sit and look at me for hours. He still looks at me for hours—through a view-finder. The other day I told him that I needed a new hat. "A new hat," he screamed, "you want a new hat and I haven't even got a telephoto lens!"

I picked out a coat for Easter, but when he saw it he wouldn't let me buy it. He said that the color wouldn't register well on orthochromatic film.

Then there was the day a neighbor boy almost got run over by a speeding car. When I told my husband about it he listened carefully, then said: "A shutter speed of 1-300th of a second would have stopped the action of that car. That is," he added, "with a fast panchromatic film."

I try to talk sense; all he can talk is lens. Last Sunday I tried to get him out of the darkroom for dinner. "Leave me alone," he said. "You know I've only been in here since Friday." When he finally did come out he complained that the soup tasted like Hypo. I told him it was his own fault for using my pots for his chemicals. He said that it wasn't the Hypo taste that he objected to, but that it didn't taste like FRESH Hypo.

When I told him that he was ruining our silver by using it to mix his chemicals, he said we could learn to use chopsticks just as well. Every time I give little Herman a bath, he sits there with a clock and makes me rinse him for twenty minutes in running water.

One of the baby's shoes got a hole in it and I asked my husband to have it fixed. He studied the hole for a while, then said: "It's a pretty small opening. Let's wait till it reaches F-2." The other night I found him going through the family album and sending print criticisms to the photographers that took the pictures.

On payday he used to bring home a roll of money. Now he brings home rolls of film.

Very truly yours,

C. H.

P. S. Could you tell me where I could pick up a good 35-millimeter job with an F-1:5 lens for myself?

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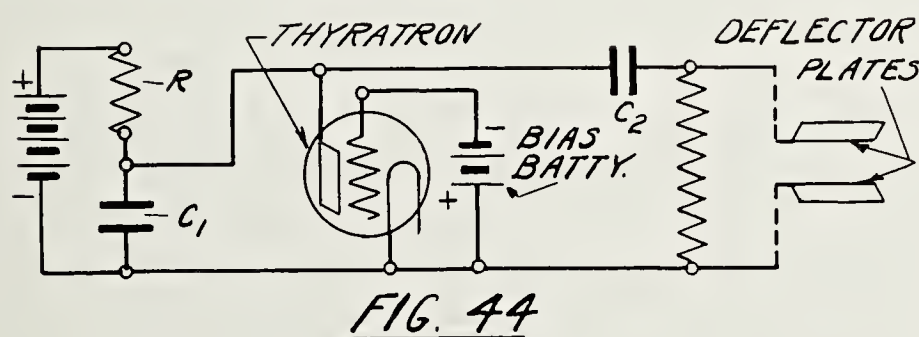
THE ELEMENTS OF TELEVISION

By C. P. MEEK

Section XLII—Triode Gas-Discharge Tubes

It was stated in the previous section that various types of gas-discharge tubes had their beginnings in the simple two-element neon tube, the action of which was just described. The introduction of a third element into such a tube changes the operation somewhat.

If a negative bias is applied to the grid of a triode which contains some neon gas, current will flow only if the anode voltage is greater than some certain value which will vary with tubes of different constructions. In one such tube a bias of 20 volts on the grid will not permit a flow of current from the cathode to the plate until a voltage of 200 reaches the plate. The common glow will be seen in the tube when this voltage is reached. As soon as this begins, the negative bias on the grid ceases to control the condenser discharge. However, the flow of current can be stopped by reducing the plate voltage to a lower value, and in the functions being considered here, this will occur naturally, since the anode voltage of the gas triode is dependent on the voltage across the condenser, and this is short-circuited by the then low resistance across the tube itself. When the glow ceases it will not start again until the plate voltage is raised to the original striking value of 200 volts.



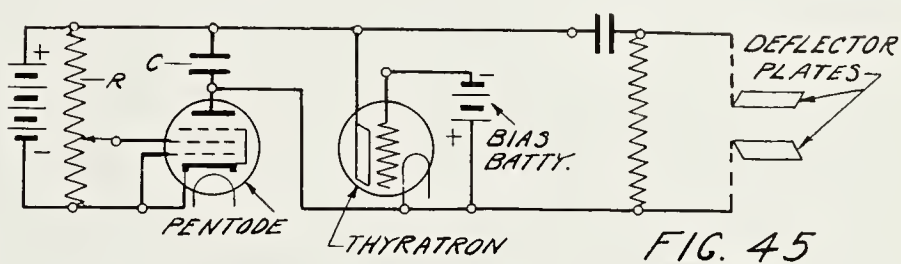
With the triode connected across the condenser and the grid given a negative bias, the voltage across the condenser will rise as previously described. The discharge will suddenly start at a value which is determined by the amount of the bias on the grid, and at this instant the condenser is short-circuited by the low resistance of the now glowing tube. The voltage will drop as soon as the condenser is short-circuited and the discharge will cease when the extinguishing voltage of the gas is reached. The condenser is then free to charge again, and the process is again gone through.

Figure 44 shows an arrangement of this type of circuit. Here the triode is shown connected across the condenser. The deflector plates of the cathode-ray tube are then connected to the plate and filament of the gas-filled relay, that is, across the condenser. The voltage variations across the condenser are, in consequence, reproduced across the plates. The condenser C_2 is introduced to prevent the high voltage supply from reaching the deflector plates of the cathode-ray tube. It should be understood that the heating of the cathode of the thyatron by direct or indirect means causes no change in the operation of the tube.

The circuit just described is not satisfactory for scanning purposes as it stands. Primarily, the intensity of the line drawn across the fluorescent material of the tube must be high so that the image may be seen in a dull light. This means that the anode voltage of the cathode-ray tube must be high since the intensity bears a certain proportion

to the anode voltage. This calls for high voltages from the time-bases of the deflecting plates to compel the beam to move from its straightforward path.

Again, the line shown on the fluorescent screen will be weaker as the beam moves faster. In the old time 30-line pictures the rate of travel of the beam was much slower than that required by the present-day high definition standard. The picture now being considered requires a line to be drawn at $1/5760$ th second and tubes for such reproduction require operation at 2,000 volts or more.



It is necessary that the sensitivity of the cathode-ray tube, as described in Section XXXV, be considered. Also involved is the effective size of the picture, since this latter controls the length of line over which the beam swings.

Consider a cathode-ray tube in which the sensitivity is on the order of .20 millimeters per volt when the anode voltage is 2,000 volts. Assume the width of the picture to be 115 millimeters. From this we determine that the voltage required to move the beam across the fluorescent screen when 2,000 volts are used on the anode will be 115 divided by .20 or 575 volts.

All this indicates that the condenser in the time-base circuit must charge to 575 volts before the gas-filled relay begins to glow. The condenser should accept a charge up to this voltage, the glow begin and the condenser then discharge. If this cannot be done directly, amplification of the saw-tooth oscillations must be resorted to, as shown in Figure 43.

To go a little further in the determination of the constants of such a circuit, each gas-discharge triode has its *control ratio specified*. By this is meant the relation between the negative grid volts and the plate potential at which the glow will begin and the condenser discharge commence. In the tube just considered the control ratio is 10:1. This means that to acquire the proper amount of discharge, there will be required a grid voltage on the thyatron of 575 divided by 10 or 57.5 volts to insure the condenser discharging at the proper moment.

In the descriptions of the theoretical operation of the two-element neon tube and the neon-filled triode gas-relays, the fundamental circuit of the condenser in which the charging voltage was controlled by a resistor has been considered for the sake of simplicity. The faults of such a charging control were discussed at some length in Section XXXVIII. This showed a great error in the incorrect charging curve of Figure 38 due to the use of the resistor in series with the condenser. Inspection of Figure 42B will show that this circuit, with its lack of linearity in the curve, has been duplicated. Section XXXVIII showed a method of eliminating the incorrect condition. The charging circuit so developed, in which a pentode is substituted for the resistor is illustrated in Figure 39. Figure 45 completes this and shows its connection to the discharging gas-filled relay and the pair of deflecting plates. In this the thyatron may have a direct or indirectly-heated cathode.

The directly heated unit is shown here for simplicity. Should the voltage derived from this circuit be insufficient to properly handle the deflection of the beam, a stage of voltage amplification similar to that shown in Figure 43 may be added. Push-pull amplification has certain advantages here of which more anon when the study will include the various faults which arise in the operation of such devices. The development of this circuit can be traced from its beginning by restudying Section XXXVIII and the associated Figures 38 and 39.

There are other methods of discharging the condenser by means of time-base circuits. There is, for instance, the use of high-vacuum radio tubes instead of the gas-filled relays. The design of circuits using these involves difficulties in acquiring the quick discharge action of the gas-filled units. If the ordinary type of tube is biased back beyond the point at which plate current will begin to flow, an increase in the plate volts will cause a *gradual* rise in plate current instead of the *snappy* rise which is required. To correct this condition it is quite possible to momentarily change the grid bias from negative to positive. This will cause a rapid flow of current which will rise to a high value. If a condenser is connected across such a tube, the sudden removal of the negative bias and the application of a positive voltage on the grid will cause a heavy current to flow from the condenser through the tube and the condenser will be discharged in much the same way as was done by the gas-filled relay.

Circuits of this type in which the impulse to the grid is furnished by a separate oscillator have been used. They have an advantage in that the frequency of discharge can be kept within very close limits, these depending on the excellence of the oscillator, which if crystal controlled,

can be held to accuracies otherwise impossible. However, all of these circuits are complicated and there is considerable difficulty in getting them to work satisfactorily.

"THE BOY"

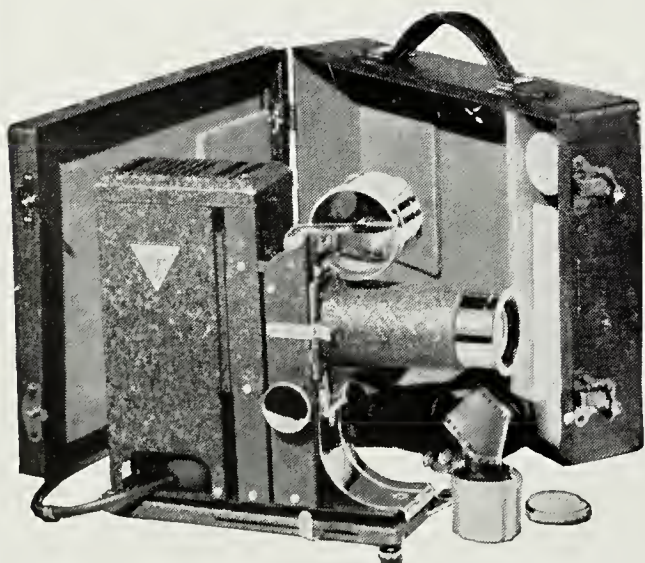
By J. ROY HESS

Without a shadow of distrust,
He smiles and says hello!
He feels you're friendly, and he just
Can't help from being so.

His dimpled face he raises
With glorious sunny smile,
Unconscious of life's mazes,
He's wholly without guile.

A wondrous thing he teaches,
Learn from him we can,
Every action of him preaches
The fellowship of man.

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THIRTEENTH INSTALLMENT

Use of Filters for Controlling Sky Intensity

Filters are used in a great many cases in exterior work primarily, if not wholly, for the purpose of altering the density of the sky. The increase in absorption from the No. 3 (Aero 1) to the No. 15(G) filter shows itself particularly in the rendering of the sky. Due to the relatively high transmission of the No. 3 for blue light, the effect on the rendering of the sky, while noticeable, is very slight. On the other hand, with the No. 15 filter the blue-violet is almost completely absorbed, so that prints from negatives made with this filter show the sky much darker than other filters which absorb violet and blue less completely. If there are clouds in the sky, then the contrast between the blue sky and the clouds increases with the absorption of violet and blue by the filter, reaching a maximum with a red filter, such as No. 72. The cameraman must choose between the degree of correction desired in the sky and the effect produced by the filter on the foreground. Experience has shown that with Eastman Super Sensitive Panchromatic Negative Film, filters up to and including No. 15 can be used for both sky and foreground without adversely affecting the rendering of near-by objects or normal panchromatic make-up when properly lighted.

It should be borne in mind that in these considerations of filters, we are concerned principally with their employment in practical cinematography. The primary purpose in the use of filters in cinematography is not for obtaining orthochromatic reproduction. Such rendering is not generally sought or even desired with this type of work; it is for this reason that attention is directed to sky and the general foreground reproduction rather than to the rendering of the correct tones of the subject.

Use of Filters for Elimination of Haze

An important factor in exterior photography which does not enter into studio work is the presence of water and dust particles suspended in the air, which condense into mist or haze. It is well known that if open landscapes are photographed, a very slight amount of haze visually results in a veiling of the more distant portions of the scene unless filters are employed. The suspended particles of water vapor scatter violet and ultra-violet, to which the film is very sensitive, producing much the same effect that would be seen through a sheet of finely ground glass. The scattering effect of the haze is at a maximum in the ultra-violet and decreases generally as the wave length of light increases. The use of light yellow filters, such as No. 3 or No. 5, result in slightly increased contrast in the more distant portions of the landscape, but for the satisfactory removal of haze, filters which absorb the violet and blue more completely are required. For open landscape subjects, such filters, however, should be used with a good deal of care or the distance will be rendered too sharp and cutting; that is, there will be loss of "atmosphere" in the more distant portions of the subject.

In aerial cinematography the elimination of haze is of more than ordinary importance and as in such work the reproduction of color is relatively unimportant, a strong yellow filter, such as the No. 12 (minus blue) or No. 15(G), is generally used.

Use of Filters in Marine Photography

Another field in which filters are used extensively is that of marine photography. Very often it is desired to photograph water sequences so that the water appears much darker than surrounding objects. The choice of filters for this type of work depends upon the blueness of the water, which is often governed by the blueness of the sky. Naturally if the water is very blue a deep yellow or even red filter will cause that water to be rendered quite dark in the print. If the water is muddy, it reflects prac-



PICTURE MADE WITHOUT A FILTER



PICTURE MADE WITH A WRATTEN NO.23A FILTER

FIG. 42—Effect of a light red filter on the rendering of water.

tically no blue sky; then even a deep filter will not appreciably change the rendering. In Figure 42 is presented a scene photographed unfiltered and through the No. 23A filter. The sky on this day was quite gray and hazy, although the sun was shining, but the water visually appeared quite blue. The use of this filter has produced some darkening of the water, without any appreciable change in the rendering of the foreground. Had the sky been very blue at the time, the water would have been still darker in the negative made with the filter.

Care of Filters

Filters may be obtained in the form of gelatin film, or such film cemented in glass. Gelatin film filters require considerable care in handling. If used in front of, or behind, the lens in any form of holder, they should be removed after use and placed in thin paper between the leaves of a book where they will be kept flat and dry. The fingers are invariably moist and, to a certain extent, greasy; hence, in handling gelatin film filters care should be exercised to hold them by the extreme corners if the filters are square, or better still, by the edges only.

Cemented filters should be treated with care equal to that accorded to lenses. They should be kept in their cases and not allowed to become damp or dirty. A filter should not be washed with water, because if water comes in contact with the gelatin through the varnish at the edges of the filter, it will cause it to swell and separate the glasses. The filter will be strained and its definition spoiled.

If, for any reason, a filter becomes so dirty that it cannot be cleaned by simply rubbing after breathing on it, a piece of fine tissue paper should be moistened with denatured alcohol and gently rubbed over the surface. Care should be taken that the tissue paper is not wet enough for the alcohol to run off and spread over the edge of the filter, as it is a solvent of the balsam with which filters are cemented and softens it, so that air may enter.

Undue heat is also dangerous to filters, as it softens the balsam and causes the gelatin to contract. Filters should, therefore, be protected from heat as far as possible.

In order that filters may not affect the definition, it is important that the glasses between which they are cemented should be of good optical quality. This is very carefully controlled in the case of the Wratten filters, which are all measured by an instrument especially built for the detection of optical errors due to filters.

The filters should be mounted in cells so that they will not be strained by pressure being put on them, because if they are squeezed, the balsam will be displaced and the definition affected.

Wratten filters are supplied in two qualities of glass plates, "A" glass and "B" glass.



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Filters cemented in glass are known as optical flats. The glass is ground with the same accuracy as the best anastigmat lenses and the completed filters are about one-half inch thick. Filters in "A" glass are recommended for use with long-focus or telephoto lenses, particularly if critical definition is required.

Wratten filters in "B" glass are suitable for all ordinary motion picture requirements.



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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

SEVERAL times in this column I have stressed the need for cleanliness in handling film and equipment if best results are desired. Having recently spent two weeks running a commercial photographic business for a friend on vacation, the importance of clean working proved itself in a number of ways.

Although no motion picture work was done, a number of 35 m/m candid camera rolls went through and handling these amid the grime and dirt accumulated in twenty years in an old store required the greatest amount of ingenuity in manipulation to give satisfactory results.

Imagine the coal pile next door to a basement dark room, at the foot of the stairs so that every time one went to the dark room it was necessary to wade through coal dust, ashes, and general litter. On top of this, the benches had been allowed to catch the drippings from cut film hangers, both borax developer and hypo. Imagine trying to handle motion picture film under such conditions, and turning out clean work. Would you want to take responsibility in such a plant?

Yet, strange as it seems, many a film processing plant violates the simplest and most obvious rules of cleanliness and one will find many instances where a study of the plant arrangements will bring out the need for changes for the better. One of the most important things to bear in mind wherever film is handled is care in loading film—whether it be cut film for a still camera, or flicker tape for your pet Mitchell or Bell. Even if your film plant is a model of spic and span cleanliness—you can cancel much of the plant's effectiveness if you handle raw stock in a careless manner.

The loading room at Jam Handy's plant in Detroit contains a device which is proving itself of value. Once before I mentioned this rig, and it won't hurt to tell about it again.

A small vacuum cleaner has been fitted up with a snout which is run around inside each magazine before film is loaded into it. This undoubtedly helps to cut down on emulsion dust causing specks on the developed film, but it pays in another way. By removing the accumulation of dust in the magazine at each reloading, much cleaner operation of the cameras is a natural result.

There is no reason why each camera could not be given this vacuum treatment every day, together with its cases. Take too much time? How important to you, are these little details which can add up to a record of satisfactory performance on one hand or exasperating annoyance on the other.

Likewise, I can see no valid reason why cut film holders and slides, as well as still camera interiors, should not get such a periodic treatment. It is even more important that still equipment be dust free than motion picture machinery, because a deposit of emulsion particles can spot up and ruin a still picture, whereas the rapid change of frames on the screen may tend to cover up dirty negative.

Every photographer of experience must realize that film has to be so handled that finger marks do not mar its surface. This applies equally well to lenses and to the bright parts of your camera mechanism, nothing shows up a sloppy, dirty photographer quite so convincingly as the appearance of his equipment.

Many plants which have not as yet installed developing machines can improve their output without a great cost.

The use of viscose sponges to remove the surface water from film after washing, and before it goes onto the drying drums, will work wonders in the prevention of water marks on the dried film. This one kink alone will improve the quality of film processing to an unbelievable degree—and it beats the wet chamois all to pieces!

Removal of chemical storage rooms and solution mixing rooms to a location well away from darkrooms and drying rooms will automatically clear up a large part of the trouble caused by chemical dust floating around the premises. It always seems to light on wet emulsions for some reason.

In fact, when one considers the multitude of things which can ruin a film, from the time it starts through the factory until it is finally thrown on the screen, it is a wonder that any pictures ever get shown at all. The fact that many millions of feet of film are exposed, processed, distributed and shown every year speaks volumes for the care used in handling.

The daily flushing of darkroom floors or grids with a strong hose, and the careful oiling of drying room floors, as well as cutting rooms, will also make a great difference.

We can't all enjoy the benefits of air-washing and conditioning, coupled with humidity control, but the careful thought applied to the removal of film's greatest enemy—DUST—will repay the worker many times over.

The use of filtered water in washing film, and mixing solutions, is to be most strongly urged. In many locations the water supply is not up to snuff as far as sand or sediment is concerned. Filtering such water will greatly improve the results, especially in washing film, the delicate emulsion of which, when wet, can be damaged so easily.

The thorough and frequent scrubbing of tanks also improves results. I know it's a messy job to scrub out a couple of big cypress or cedar tanks, but it pays! The active agitation of developer while in use, so often stressed in instruction books, is simple enough. Just arrange a small shaft reaching vertically down to the bottom of the tank, put a small two-bladed propeller on it, and drive it rapidly by a small motor. You will see the current flowing in the tank, and you'll see a difference in the even development of film on racks, because the solution is the same strength and temperature throughout. The usual sloshing up and down of the racks is not a good enough way of agitating the solution, although I admit it's a good way to remove air bubbles.

I am in receipt of a letter from Dufaycolor, Inc., giving some interesting dope on their color film.

According to this letter, the 35 m/m negative stock produces a complementary color negative, from which any reasonable number of contact prints on 16 m/m reduction prints may be made in full natural color.

An important point mentioned in the letter is that the filters required differ from those listed for still work in Dufaycolor literature. The letter failed to give data for motion picture work, but you may get this information by writing to Dufaycolor, Inc., 30 Rockefeller Plaza, New York City, New York.

The prices quoted for Dufaycolor negative film are as follows:

Negative, including development.....	30 cents per foot
Print, (35 m/m).....	20 cents per foot
Print, (16 m/m).....	16 cents per foot

Edited sound track will be printed without additional charge.

No. 16 m/m Dufaycolor negative stock is available, but 16 m/m reversal lists at \$9.00 per 100 feet including processing.

Dufaycolor is also available in rolls to fit almost any still camera, as well as in cut film up to 8x10 inches. No packs are on the market as yet using this color film.

Prints in full color may be made on paper, and enlargements are also to be had up to 8x10 inches.

Prices are fairly steep, list price on 3¼x4¼ cut film being \$7.20 per dozen, with the development charge being 25 cents per sheet up to 4x5 inches.

I understand on good authority that complete development formulae will be available to the trade within a few weeks.

I saw several samples of Dufaycolor, both as transparencies and in the form of prints on paper. The color was excellent and the color balance seemed very good. The pictures on paper are made from wash off reliefs, and are, consequently, quite expensive, running to as high as \$6.50 for an 8x10, and \$3.00 per duplicate. To get this price, however, the duplicate must be ordered at the time of the first print.

The use of this film, expensive as it is, will, no doubt, be justified in many cases especially clinical and surgical work. The fact that duplicate prints can easily be made is a great point in its favor.

Dufaycolor negative can be run through your own finishing plant, and you can make your own prints. The original development is exactly the same as any panchromatic negative, it is not reversal film.

TALKING TRAILERS

Special announcement talking trailers—an innovation in talking screen trailers—have been introduced by the Filmack Trailer Company of Chicago. An entire new department has been added to the Filmack plant to handle these special talking trailers, to be made from the exhibitors' own copy. They will be available at a cost considerably below that of printed titles.

Trained radio announcers will voice the trailers and they will be shipped the same day of production.

"Although title trailers have their place in theatre screen announcements, we feel that these new talking trailers, used separately or in combination with titles, will make a welcome variety in screen announcements," said Irving Mack of Filmack. "The shorter screen time required for talking trailers, and the elimination of art work and card charges make possible their low cost, making them available within the reach of every exhibitor."

A. P. Hollis, director of the National Conference on Visual Education, announced today that one of the largest meetings of visual educationists ever to be held will be given in Chicago on June 20-23 inclusive at the Francis W. Parker School.

Subjects of the conference discussions will be on motion pictures in education and industry. Leading visual-minded educators, advertising executives, and industrial officials will participate in the three day and evening sessions at the Parker School. The national conference, now

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Fitted with Xenar F:2.8 lens.....\$80.00

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in its eighth year, is a non-profit organization supported by the De Vry Foundation, and is devoted entirely to the movies as an educational medium.

GOING UP!

It is reported by J. Burgi Contner that the sales of Motion Picture Camera Supply, Inc., have gone up so rapidly that enlarged quarters became necessary. On February 11th this concern moved up twelve stories to the Pent House at 723 Seventh Ave., New York City. A new and larger laboratory has been added too.

Erpi Picture Consultants Inc., New York City, has changed its name to Erpi Classroom Films, Inc.

Charles E. Ford who resigned as Editor of Universal Newsreel has departed for Hollywood where he will produce pictures for Republic Productions.

The I. A. T. S. E. Convention will be held in Cleveland, Ohio, on June 5th.

George E. Browne, President I. A. T. S. E., arrived in Chicago February 18th to attend the Annual Ball of Stage Hands Local No. 2.

Bill Skall boarded a plane the other day for a flight to Chicago to see his family physician, Dr. William H. Bradley, who put him in bed at St. Anthony's Hospital for observation, after a few days he was pronounced O. K. but advised to watch his diet and improve his habits.

"HIBERNATING NEWSREELERS!"

By RED FELBINGER

OLD SOL has taken its annual vacation from the Chicago Loop territory and once again the newsreel fraternity is digging and scraping to keep things going in the Windy City territory. Florida and California bathing gals are getting their due footage in the reels and an ample supply of datelines from the tropics are creeping into the national editions of the reels.

However, even in dull seasons the Chicago clique of lens snoopers do not hibernate. Through diligent initiative the old middle western date lines ride through the winter months; Chicago lensers do not hibernate. "Why not," you ask?

Well there's the old winter sports. Yes they have their Lake Placid, N. Y., and Sun Valley datelines, but there are just as many on the winter sports coming out of the Chicago area.

The New Year is still a pup and the lads trek out to Fox River Grove, Illinois, for the annual Norge Ski meet. This particular meet is the daddy of the major skiing tournaments held in the U. S. A. It is still the predominant ski tourney after all these years and its coming brings the lads with the news boxes out en masse. It's a tough assignment despite it being a veteran annual on newsreel future books and it's the first stiff workout of the season. It must be covered fully and covering fully means a heart-breaking climb up a steep hill and the long slide from where the entrants take off.

To have Cary behind you, if you are a newsreeler means the first tough assignment of the New Year is done with.

Then, too, most of the major skating events are held in the middle west. The National Speed Skating championships are run off at Oconomowoc, Wis., and it's generally a mighty cold day and stiff cameras grunt and groan as the topical lads slide around on the ice for the various angles demanded by the critical editors.

Some communities turn out en masse for their annual welcoming of King Winter. At St. Paul, Minnesota, the entire town stages an all afternoon parade in which all participants wear original gay Winter sports costumes winding up with the colorful crowning of King Boreas in a natural ice palace, constructed of huge blocks of thousands of tons of ice. This year the entire contingent of Chicago boys were represented on this particular show. The Ray-Bell gang of St. Paul made the official picture of the carnival in addition to the footage supplied the newsreels by the regular staffers.

So winter sports play a major part in supplying middle west datelines to the reels besides the usual run of features that are developed by the boys. A dog inherits \$30,000 from an eccentric old spinster, the court upholds the will, and the dog becomes a human interest feature in the reels.

A baby Panda is captured in the wilds of western China to be brought to Brookfield Zoo at Chicago as playmate for Su-

lin, the first Panda in captivity, and the newsreel lads get another animal feature that makes the reels.

Spot news is slow in breaking but when it does in the Chicago area, during the winter months, it generally strikes as a fire; a train wreck; a flood, or perhaps a crime story.

Several weeks were spent by the newsreelers, after the first month of the year was ushered in, trying to get pictures of John Henry Seadlund, captured by J. Edgar Hoover and his G-Men as the alleged kidnapper and killer of a wealthy Chicago greeting card manufacturer. The G-Men, always secretive and elusive to the press on their movements, gave the newsreel boys more than two weeks of headaches and hanging around airports checking all planes for their quarry. When the smoke cleared John Henry Seadlund had made the national editions of all reels and once again the newsreelers scored on the G-Men.

Train wrecks have been cropping up to keep the lads on the go and two, so far, have made good pictorial spot news for the reels.

Ice jams in rivers in the middle west have caused enough flood waters to run into enough footage for a few stories in the reels.

In spare moments the radio has called some of the lads to the microphones to give an exciting account of an unusual profession. Emile Montemuro appeared on the Eddie Guest program on a coast-to-coast hook-up, which proves that people are still not only interested in the newsreel in the theater, but enjoy the interesting sidelight of meeting the boys and knowing how they operate.

At times the news cycle does carry the Chicago area through dull winter months by furnishing headline material that keeps the boys jumping. But, as a rule, winter is a very dull period for the Chicago lads, but "no news is bad news!", so it must be manufactured.

Editors are adverse to carrying lads that hibernate on the payrolls, and to date, for a good number of years the Chicago gang has been able to keep feeding middle western datelines through the cold months to New York. As Montemuro said on the Eddie Guest radio program, "It can be done!"

The newsreel clique of 666 does not hibernate, it stays very much above the surface during the cold months, witness the Chicago datelines in the newsreels.

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WELL, Fellers! Guess you have all seen my mug by now. It's a treat for youse . . . Now it's 'bout time you've read some'ting 'bout yours truly! Saw lite for the first time May 11th, 1897 . . . that happened in the land of the fry'oles, tortillas and hot tamales . . . guess that makes me a Mexican.

Photography always fascinated me and practically the first dough I earned was used to buy meself one of those things to shoot "pitchers." I took the thing apart to find out how the "pitchers" were made and found nothing, nor could I put the darn thing together again,—so that was the end of that!

My first job was stooging in an office of a candy factory. In the meantime I took lots of "pitchers" of the fellers and señoritas, that brought me money . . . I was too good(?).

Later in the years of siege I joined the Air Corps where I shot lots of stills and mum "pitchers" for the Government. Saw in person the Mexican Napoleon . . . Pancho Villa . . . and many others just as mighty as that . . .

Things got purty hot for me so after some years, I says "good bye" to the hot tamales and hot señoritas and comes to the good old U. S. A. I tried to keep up "pitchers" shooting but no sale, no money . . . found jobs in export offices away from my "alma matter"—so one day I says to meself—"gotta shoot 'pitchers' again." I fired meself—no more pounding typewriters. I went to the Daily News Universal News Reel where I saw a guy by the name of Charlie David (I guess youse guys have heard of him) asked for a job—told him I was purty good—he almost threw me out . . . Walked down, down in the dumps—went across the street to one National Screen Service—spoke to two guys—Messers. Young and McPherson—they never saw me before but they thought I was purty smart—they says—"Report for work tomorrow" . . . so guys here I is still with National Screen Service making purty good trailers—grinding a box, shooting "pitchers" all the time—the best of all—I ain't got a "kick" in four million feet . . . ain't that something? Guess I ain't so bad. Incidentally, that makes me the only Mexican Camera-Man in good old U. S. A.



Francis Venegas

Adios Amigos.

Important Notice

to Members

Remember all dues, taxes and special assessments are deductible from your Federal Income Tax.

CINEMA DIGEST

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Rates 50 cents per line—minimum charge one dollar per insertion. For Sale—For Rent—Wanted—For Exchange—Etc.

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FOR SALE—DeVry hand camera, good condition, apply Cinema Digest.

FOR SALE—Camera motors, polo screen holders, any camera. Doc Gantz, Local 666, Chicago.

WANTED—To buy November 1936 copy of Cornet Magazine. Cinema Digest.

WANTED TO BUY—Used Moviola in good condition reasonable. Apply Cinema Digest.

FOR SALE—12 volt D.C. motor (new) for B & H camera, bargain, \$110.00. Box 233, Cinema Digest.

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This Water Tower is an old Chicago Landmark that withstood the disastrous fire of 1871. Photo by John C. Richardson, I. A. 666.

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NASH

APRIL, 1938

VOL. 4

No. 4

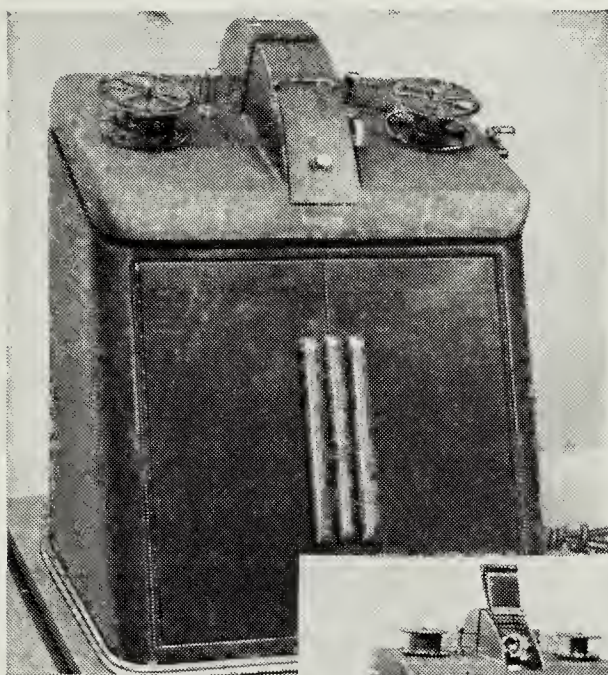
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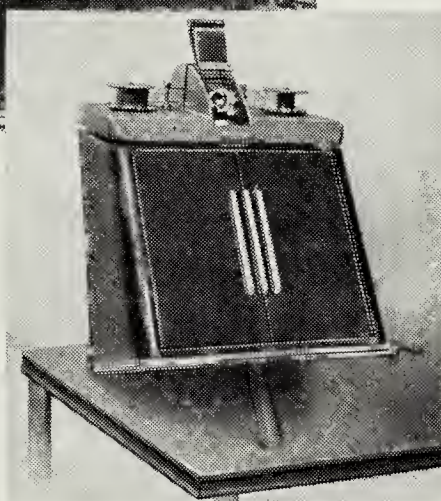
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Academy of Motion Picture Arts and Sciences

1937 Awards

Best Production—"The Life of Emile Zola," (Warner Bros.).

Best Performance, Actress—Luise Rainer in "The Good Earth," (M-G-M).

Best Performance—Actor, Spencer Tracy in "Captains Courageous," (M-G-M).

Best Supporting Actress—Alice Brady in "In Old Chicago," (20th Century-Fox).

Best Supporting Actor—Joseph Schildkraut in "The Life of Emile Zola," (Warner Bros.).

Best Direction—Leo McCarey for "The Awful Truth," (Columbia).

Best Assistant Director—Robert Webb, "In Old Chicago," (20th Century-Fox).

Best Original Story—William A. Wellman and Robert Carson for "A Star Is Born," (Selznick-International).

Best Screenplay—Norman Riley Raine, Heinz Herald and Geza Herczeg for "The Life of Emile Zola," (Warner Bros.).

Best Cinematography — Karl Freund, "The Good Earth," (M-G-M).

Best Art Director—Stephen Gooson, "Lost Horizon," (Columbia).

Best Sound Recording—Thomas Moulton, "The Hurricane," (Samuel Goldwyn).

Best Musical Composition—"Sweet Leilani," Harry Owens, in "Waikiki Wedding," (Paramount).

Best Dance Direction—Hermes Pan, "A Damsel in Distress," (RKO-Radio).

Best Film Editing—Gene Havlick and Gene Melford, "Lost Horizon," (Columbia).

Best Scoring—"100 Men and a Girl," (Universal).

Outstanding Shorts—One-reeler, "The Private Life of the Ganets," (Educational); two-reeler, "Torture Money," (M-G-M); cartoon, "The Old Mill," (Walt Disney); color short, "Penny Wisdom," (Pete Smith-M-G-M).

Thalberg Plaque, to Darryl F. Zanuck.

Special Awards—Mack Sennett, Edgar Bergen, W. Howard Green, Museum of Modern Art Film Library.

CINEMA DIGEST

CHICAGO, ILLINOIS

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 BERTEL J. KLEERUP.....Associate Editor
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Universal Newsreel Cameraman Killed in Line of Duty

THOMAS PROFFITT, Universal Newsreel Cameraman met death last week while photographing the six day log raft journey down the Susquehanna River, which was held in commemoration of Central Pennsylvania's lumber activity of fifty years ago.

Proffitt and his camera was knocked off the raft with many other people when it crashed into a pier.

He was 43 years old and leaves a wife and daughter, Hope, 16 years old; he was a member of International Photographers of the Motion Picture Industries Local 644 I. A. T. S. E. & M. P. M. O. of New York.



Harry Birch and Jake La Fleur in Florida shooting batting practice at the spring training camp of the Detroit Tigers for Wilding Pictures.

Harry Peterson, Charles Geis and Soundman Wickemeyer at Pinehurst, North Carolina, shooting the 36th Annual North and South Open Golf Tournament.

Verne Blakeley just back from a three weeks tour of the Studios in Hollywood, California.

Doc Gantz busy for Audio with Don Malkames and J. M. Aichele in Chicago.

George E. Browne, International President, back in Chicago from New York and Washington.

Max Markmann on the staff of Universal Newsreel.

Sam Savitt's mother-in-law, Rose Kareger, passed away last week.

Norman Wilding returns from three weeks vacation in South America.

Frederick Gately shooting studio chore for Chicago Film Laboratories.

Orlando Lippert just announces the birth of a son, Norman Eric Lippert, who arrived two months ago.

Llewellyn who is no longer affiliated with this company.

"THE SUNFLOWER"

By J. ROY HESS

THERE was a beauty contest
 In a garden fair to see,
 And all the flowers entered
 Were as anxious as could be.
 Of course it was expected
 Among the entries sweet,
 The Rose would be the favorite
 And very hard to beat.
 But there were plenty others,
 Who feared not the Rose fame,
 The Pansy and the Lily
 Were conceded quite a claim.
 The Violet and the Dahlia,
 The Portulaca wise,
 Were sure to be considered
 In awarding the first prize.
 When all the Blooms were gathered
 In the great convention hall,
 A strong voice rang out clearly,
 Saying, "Beauty isn't all."
 I may not be a beauty,
 But I have a lot of fun,
 By standing up so straight and tall
 And following the sun.
 I may not be exquisite,
 I may not have much style,
 But I give to each one passing,
 A very sunny smile.
 For I am hale and hearty,
 And Good Will is my power
 I'm happy, care-free, blithe, and gay,
 In fact I'm a Sunflower.
 She didn't get the beauty prize,
 Of course that couldn't be,
 But she won a special medal
 For her great philosophy.

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Screenings, Thither and Yon

By ALMA MAE BUTLER

I DON'T blame them for writing songs about the South. Everything down there suggests melody. Rhododendrons splash their colors, and then you know it's Spring. Steamboats chug along her levees, backwashing enchanting ripples. Nature wields her mystic touch, and the fields go into a cotton shuffle.

Even her words strike rhythm. Where, in the North, is a town with swing to its name, like "Tallulah"? All those embryonic ditties on Pittsburgh, Toledo or Muncie may well stay unborn as hope to obscure the mere croonful utterance of "Natchez."

The South deserves it. Not so much for her gracious acceptance of the thralldom of Abolition, but for fanning into flame the heroic survival of her lovely, old ideals. Courtesy is as much a part of the South as corn pone and sorghum molasses. It isn't the painful palaver of the flesh pots of the outer world, but courtesy born of chivalry—a simple love for the tranquil. Like marauders, we lay siege at every portal, ablaze with our well known bravado, but gentle proficiency at burrowing veneer spares the South from all that is tawdry.

Fancy the interspersions of the subtleties of a charm school in our flamboyant northern jargon. We mountebanks well can afford to imitate our modest neighbors below, but, unfortunately, returning itinerants achieve only its reaches by dramatizing their G's and R's.

On the other hand, two of our Norsemen, home from their trip, had a different angle to relate. Walking in Memphis, they fell behind some adolescents who chatted with an interesting drawl. To their astonishment, the kids shifted, one by one, to the rear, and one of the lot compelled, "Theyah from the Nawth; let's stay up close so's we can heah theyah talk."

Nowhere in Dixie is there the hustle-bustle to get nowhere that is so exasperatingly prevalent up north. And ludicrous as it may seem, only an imaginary line accounts for this widespread metamorphosis; a change in the man-

ner, speech and even the political zeal of the entire lower nation.

Down South, as well as in the North, certain sects are more audibly conversant with the Deity than those of other beliefs. This is particularly true in more secluded districts, and especially of the colored race. Almost anyone can mount a soap box, cry out to High Heaven and get a royal "Amen."

At one time or another, whole communities submit to this stratagem for "being saved." Someone, of an oratorical mind, wields the verbal hell-fire and brimstone necessary to rout the Knave, and this, when properly applied, with gusts of pressure to assist the cosmic urge, stirs up contrition, knocks them all prostrate, restoring purity of cradle days. Galilee is their for the nonce, amid great weeping and wailing, and all those penitents whose gay peccadillos once teetered the very hillsides, take on a sanctity that shies at "Consarn," and even chewing some white, wax gum. Like vaccination, it often fails to "take," but before a year rolls by someone else shows up with a bag of tricks for shortcutting the path to glory.

In the South you eat "chitluns" and fat back, with gobs of stuff called grits. Though only a cereal, the adaptability of grits bears fruit to its many caprices. It may lurk unsuspected in the recesses of your hoe cake, and likewise the pouf of dessert. A chorus of flies may be doing the mazurka all over the sugar bowl. The tumbler may hold the drainings of some of that Mississippi mud. The baseboards may wail the misery of barbarous soap neglect—but, the being in Dixie, munching fried chicken is reason enough to forgive.

Outside, "God's in His Heaven"—peace reigns in this little world. Happy Sambo lolls down the highway, sporting Sunday purple and red, leaving visions of glistening smiles set in ebonied frames. Mules trudging rickety carts carry whole families to prayer from their tumble down, ashen cabins with doors ajar to admit white fields in the rear. Cock-fights in corner church yards. Stray coon hounds everywhere. A road sign that shouts a scrawled "Deture" with night closing on every hand. Over in the west pixy goblins, strumming their lutes of gold, let down the shadows while the Pipes of Pan tune out another day.

And nobody knows the right from left; its South—so nobody cares.



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STORM OVER HOLLYWOOD

By ART REEVES

PROPERTY losses totalling over \$200,000, plus the mounting overhead occasioned by shooting schedules delayed from several hours to three days was the tribute paid by the motion picture industry to Southern California's worst storm of fifty years. Hardest hit were the three San Fernando valley plants—Warner's, Universal and Republic—but all studios suffered losses of time and money, and all joined in lending their every resource to the work of rescue and, later, rehabilitation in the stricken areas.

The storm began as a gentle, but persistent rainfall on the last day of February. It continued through the next day and night, and on the morning of March second, increased suddenly to cloudburst proportions. With roads flooded and bridges washed out in many districts, studio workers found it difficult, and in many cases, impossible, to get to their work. Typical was the experience of Cinematographer George Folsey, who left his Hollywood home at 7:30 to fill an early call at M-G-M in Culver City, but was unable to reach the studio until the following noon. In all, less than 40% of the industry's personnel were able to report for duty. On the "Marie Antoinette" set at M-G-M, with 300 extras on call, less than 40 reached the studio for work. At United Artists, all work on Walter Wanger's "The Adventuress" was cancelled when three principals—Madeline Carroll, Leo Carrillo and John Halliday—were unable to get to work. At 20th Century-Fox, cast and crew of "The Battle of Broadway" waited in vain for Director George Marshall, isolated at his Malibu beach home. Work finally continued with Allan Dwan pinch-hitting for Marshall.

All studios closed early in the afternoon, ordering personnel to make their way home while some roads remained passable. Republic was first to shut down, stopping at 1 P. M., when power lines from the Van Nuys substation washed away, leaving the studio without electricity. The majority of the other plants followed suit by midafternoon. Much of the footage exposed proved valueless, as for the first time since the advent of sound, the drum of the rain on sound-stage roofs penetrated the structural soundproofing and was recorded.

Many studio workers—stars and executives as well as extras and laborers—found their routes home cut off by the flood and were forced to spend the night in the studio. Fifty Busby Berkely chorines were bedded down for the night on one Warner stage, while there and on other lots dressing-rooms, offices and stages were turned into impromptu sleeping quarters, with property and costume departments dealing out pajamas and blankets. Shirley Temple spent the night in her dressing-bungalow at 20th Century-Fox, while at Warner's, George Brent, James Cagney, Edward G. Robinson and nearly 200 others were similarly marooned.

Throughout the day studio trucks and drivers ranged the flood areas aiding in rescue work. Two of Republic's trucks were washed away, later to be found buried under six feet of silt. M-G-M, in addition to throwing its transportation truck-fleet into rescue work, lent also a flotilla of boats recently overhauled for use in "Life on the Water-front," and rendered yeoman service evacuating stranded families from the flooded lowlands around Culver City and Venice. Studio policemen, all of whom are either deputy sheriffs or special city officers, were out all day

patrolling roads near the studios, warning traffic away from washouts, and aiding in rescue work.

The following morning, the studios began to take stock of the damage they had suffered. Republic was probably the heaviest loser, with Universal and Warner's close seconds. Three acres of Republic's back lot had been washed completely away when the Los Angeles river, blocked downstream by collapsed bridges, carved itself a new channel through the studio's grounds. The studio was virtually, though not wholly isolated, and all production was suspended for several days. When shooting recommenced, power was supplied by portable gasoline generator-trucks, as normal power lines could not be restored in time.

Universal's losses totalled over \$75,000 as the permanent jungle set was destroyed, the permanent German village partly destroyed, the process stage undermined, and water and power lines broken.

Warner's losses were around \$50,000. The recently completed permanent bayou set was destroyed, and many other standing sets severely damaged. Heaviest individual loss was when the new truck sheds were undermined and collapsed; the twenty-five trucks normally housed therein were saved, however.

At 20th Century-Fox, a Scotch village of 40 buildings, just constructed for "Kidnapped," was the chief loss, totalling \$20,000.

The studios located in Hollywood proper suffered relatively little damage, though their ranch-lots in the valley received some damage. Paramount averted incalculable damage only by the strongest of efforts, however. During the storm the entire lot was under nearly a foot of running water, with studio cars necessary to ferry workers from stage to stage and office to office. The rising waters endangered the studio's film-vaults, containing several million dollars worth of negatives of current productions. Special crews laboring incessantly in three shifts erected sandbag barricades and, with powerful centrifugal pumps, kept the water from entering the vaults.

Many studios were forced to go without rushes for several days when interrupted power service closed both studio and commercial laboratories. When service was reestablished, power line fluctuations made it unwise to jeopardize valuable negative by starting development. Almost the only plant to carry on without interruption was Warner's new laboratory, which has standby gasoline-powered generators which are automatically brought into operation with any failure of outside power.

Individual losses in the form of damaged or destroyed homes of film people can hardly be estimated. Many of those living in the flooded sections of the San Fernando valley found their homes badly wrecked; a few, like actor Ralph Bellamy, lost their homes completely. Others, living in Laurel Canyon and other hillside sections suffered heavy losses through landslides and the collapse of weakened retaining walls. Veteran Cinematographer Arthur Edson was typical of the many film figures sustaining such losses. His home in Laurel Canyon was severely damaged by landslides; his beach home at Malibu wrecked by floods and rain; and when the waters in the Valley went down, he learned that of a 100-acre ranch he owned, but six acres remained.

As the community began to dig itself out of this dis-

aster, the studios again rendered the stalwart service which binds them to the community. Crews from the studio ranged the flood areas aiding the herculean task of cleaning up. One valley resident reported to this writer that immediately after the storm, Warner's dispatched a score of trucks and 150 men to dig the mud from their employees' doorsteps. "There was one Warner employee living in my block," he reported, "but the studio crew dug out the whole block. In the next block, there was nobody from the studio—but even so, that studio crew cleared up the whole block!"

The studios inevitably were affected by the destruction of all transportation and communication facilities in the Southern California area, which virtually isolated the region. Rail services were abandoned for days, with only the airlines capable of carrying passengers and mail. The Fox West-Coast Theatre circuit chartered planes to carry films to theatres in San Diego, Santa Barbara, San Bernardino, Riverside, and the Imperial Valley when, for the first time in history, the regular film-delivery trucks could not get through. In several instances, duplicate prints were shipped by air when programs sent by truck were marooned. Telephone and telegraph services were cut off for two days, and then resumed only on a restricted basis, with eastern messages routed by way of San Francisco. The congestion may be imagined when it is mentioned that there are normally 285 circuits carrying telegrams between Los Angeles and San Francisco, but for several days following the storm, but 45 of these were operable, and had, in addition to normal coastal traffic, to carry the re-routed eastern messages as well.

The isolation probably served some studio departments in good stead, however, for production executives could not be reached by inquiring New York offices, a condition many western executives would term utopian! Publicity and other departments congratulated themselves that the storm's isolation permitted them to catch up on needed work without the interruption of visitors. But it did not prevent several of the press agents from giving out the inevitable, bromidic "story" of studio units scheduled to shoot rain scenes, but compelled to change the schedule as natural rain was not so convincing as artificial showers. Only, in this case, the hoary "gag" turned out to be true!

Ultra-Violet Recording

WALTER HOTZ

ALTHOUGH ultra-violet recording has been in use for some time, many have asked for an explanation as to how it works. Therefore a word on the subject at this time does not seem out of order.

In the early days of sound recording it was the opinion of those in the field that the more opaque a variable area sound track the better the results. We soon found that this was not the case and that a very much lighter negative and print density had to be used in order to prevent hilation from filling in the higher frequencies. However, the lighter the density, the less the volume range and the higher the ground noise. Processing, contrary to most laboratory opinions, became just as critical as any other type of recording.

White light penetrates the emulsion of the film and in part is reflected back from the base of the film causing hilation, filling in the higher frequencies resulting in their loss or distortion.

Ultra-violet light does not penetrate the emulsion of the film, eliminating the hilation, allowing a heavier density, thereby increasing the volume range of the track as well as a better quality high frequency.

A white light recording lamp is used and a filter which passes ultra-violet light only, is placed in the optical system of the recorder, between the slit and the objective lens.

When making prints, white light printing also causes hilation as in recording. Therefore, in order to gain all the advantages of ultra-violet recording, the prints should be made with Ultra-violet light also.

Ultra-violet negative should be processed to a density of 1.9 and an ultra-violet print to a density of 1.4 as compared to white density of 1.4 for the negative and 1.2 for the print.

When an Ultra-violet recording is printed on an Ultra-violet equipped printer better definition, especially in the higher frequencies, is readily noted.

Bell & Howell Appoints New General Sales Manager

J. Harold Booth has been appointed General Sales Manager of the Bell & Howell Company, world's largest manufacturers of motion picture equipment, with principal offices located in Chicago. Booth replaces J. G. Llewellyn who is no longer affiliated with this company.

For the past three years, Booth has been Assistant Sales Manager of this company. Prior to this, he was a Development Engineer in the Research Laboratories of the same organization, specializing in the designing of amplifiers and sound projectors. He has been with the firm for eleven years.

Before joining the Bell & Howell Company, Booth was Advertising Manager of the W. L. Clark Company of New York.

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Motion Picture Laboratory Practice

FOURTEENTH INSTALLMENT

PART 2—POLARIZING SCREENS IN MOTION PICTURE PRACTICE*

While not color filters, screens producing polarized light, such as the Eastman Pola-Screens, are used frequently today where color filters would have been used in the past; hence, it seems logical at this place to refer briefly to the applications of polarizing screens to motion picture practice. The term "polarized" does not refer to the color, or brightness of light, but to a third property, which cannot be seen with the unaided eye and is concerned with the way in which a light ray vibrates. Ordinary light rays from a lamp, or from the sun, vibrate in all possible directions at right angles to the ray itself. When a ray of light is polarized, vibrations in all but one direction are cut out; for example, in a horizontal ray, only the up and down vibrations might be left. A ray of light already polarized will pass through a polarizing screen, if the vibration of the ray is in line with the vibration plane, but is absorbed more and more as the screen is rotated away from this position.

Plane-polarized light, or light which is partially plane-polarized, is very common in nature; for example, light rays from a clear blue sky, arriving at right angles to the sun's rays, are strongly polarized. When this same sky light is specularly reflected from water, these reflected rays are likewise polarized. In addition, ordinary, unpolarized light, specularly reflected from any nonmetallic surface at an angle of approximately 32 degrees to the surface, is strongly polarized in the act of reflection. A lesser amount of polarization occurs at other angles, but none at zero or at an angle of 90 degrees.

The existence of polarized light in such subjects makes it possible to obtain a number of interesting and useful effects with a polarizing screen, such as the Eastman Pola-Screen, over the lens.

For Controlling Intensity of the Sky

For a clear blue sky, the Pola-Screen acts as a variable depth filter. Any sky effect from no filter to that produced with a red filter may be obtained by rotating the Pola-Screen to the desired position. Night effects may be obtained by adding a red filter to the Pola-Screen.

The screen has no effect when shooting directly at the sun, or directly away from it; the maximum effect is obtained when the sun's rays are at an angle of 90 degrees to the camera.

The use of the Pola-Screen for controlling the brightness of the sky has a number of advantages over the use

of filters: (1) the color rendering of objects in the foreground is not altered; (2) the effect produced by the Pola-Screen is easily determined from the appearance of the image on the focusing screen; (3) filters may be used with the Pola-Screen to control the color rendering on objects in the foreground, and the brightness of the sky controlled independently by the Pola-Screen.

Control of Contrast

With many subjects the use of a Pola-Screen over the lens makes it possible to control the relative brightnesses of the various parts of the subject without changing the lighting. This effect is very marked in the case of the walls and roofs of buildings, sunlit water, and wet pavements.

Photographing through Glass or Water, or to Control Reflections

When the camera is approximately 30 degrees to the surface, reflections can be removed from glass or water to show detail beyond, or below, by rotating the Pola-Screen to the required position. Turning it at right angles to this position brings back the reflection more strongly than before.

Other applications are the control of reflections from floorings, table tops, grained-wood panels, linoleum, tile, brick, painted and lacquered objects, fabrics, leather, etc. The most effective angle of illumination is approximately 30 degrees to the surface.

Double Exposure

A Pola-Screen may be used to produce double exposures by placing a thin pellicle mirror in front of the camera lens at the required angle and rotating the Pola-Screen at the lens. The image reflected by the pellicle mirror appears or disappears in accordance with the angle of the Pola-Screen.

As a Variable Neutral Density Filter

Two Pola-Screens together form a variable neutral density filter which is varied by turning one screen at an angle to the other. The range available is from 0.5 to 2.8 density units (transmission 32% to 0.16%).

*Technical Data**

The Pola-Screens have a slight scattering power, and when used over the lens must be screened from all extraneous light by a suitable lens hood.

The increase in exposure for all angular positions of the Pola-Screen is four times with panchromatic material. It is possible to use a Pola-Screen with orthochromatic or with non-color-sensitized material, but the exposure increase is very much greater.

*McFarlane, J. W.: "Demonstration of Photography by Polarized Light," *J. Soc. Mot. Pict. Eng.*, Vol. 26 (June, 1936), p. 679.

*The applications of polarized light in photographic practice are increased when polarizing screens are placed over the light source as well as the camera lens. See "Introduction to the Photographic Possibilities of Polarized Light" by F. Tuttle and J. W. McFarlane, *J. Soc. Mot. Pict. Eng.*, Vol. 25 (July, 1935), p. 69.

The first installment of Chapter IV Motion Picture Laboratory Practice will appear next month entitled, "Developers and Development." This interesting series will deal with various formulas for developing agents and their action on positive and negative film. Those sections dealing directly with processing have been written with the idea in mind of serving both the small commercial laboratory as well as the large producing unit.

Rear Projection Process

By GORDON ARIL, I. A. 666

REAR Projection Process in every-day practice presents no problems that can be termed new. Unfortunately, production cameramen do not have the opportunity to practice it every day and the advantage and confidence gained through familiarity is not acquired. The advantages enjoyed by this process are well known, types of scenes including direct recording in moving automobiles, trains, etc., direct recording against traffic noise backgrounds, factory noise backgrounds; transplanting distant locations to Detroit, Chicago, Hollywood, etc.; trick work; out of scale combinations, and other applications being uncovered continually. The only alternative for satisfactorily covering action requiring rear projection process scenes is to rewrite the script, accepting a poor substitute. So, inevitably the production cameraman receives a projection process assignment.

The most important factor in successful (convincing) projection process work is balance, more important even than exposure. If the balance, that is brightness relationship between projected image and foreground action harmonizes, the cameraman need have no worries about quality.

The stage equipment, briefly outlined, starts with a rear shutter projector synchronously motored to a camera, the shutters of each bearing a matched lining-up start mark. The light source, a high intensity condenser or mirror type arc, should be capable of projecting 6 to 20 foot candles of light through the screen when projector is run without film. To measure light hold light-meter in contact with screen from camera side. The screen should be of "calibrated" type; that is, one having less transparency in the center than at the edges. If either a ground glass or flexible type screen, not "calibrated," is used a gelatin filter like those used in theatre spot color frames, light straw or light amber in color, can be cut and suspended 12" to 24" in front of projector lens to even the light distribution on the screen. The stage length should equal five or more times the horizontal dimension of the picture; i.e. 16' picture, camera and projector 75' or more apart. A 40 m.m. lens is the widest angle that should be used on the camera as the falling off at the edges increases objectionably in lenses of a wider angle. The projector lens and screen position can be determined from projector lens tables and can usually be made to conform to lenses available.

The background film or plate can be shot with a camera having either a full aperture or an academy sound aperture. If sound aperture is used the camera-projector distance will be increased slightly for a given camera-projector lens combination. The grain increase due to greater magnification is negligible, assuming the plate negative has been exposed on a fine grain negative and given full exposure to insure slightly less than normal development. In making plate negatives expose for the shadows, holding down bright sky with filters, or, sky and other strong high lights with Pola screen. The plate (positive) density should be light, just retaining the high light details. Fifteen feet of frame-marked leader should be spliced on beginning and end of negative. This eliminates patches in plate, prevents end from running through projector and enables the director to time foreground action. Three prints of each plate should be made in case of film breakage as well as to eliminate production time delay in threading projector.

After the plate has been viewed and the foreground action positioned properly in relation to the screen; that is, the picture size necessary to back up the action, framed up or down to give the proper perspective, and the action distance from the screen set to permit lighting (closeup action can be placed within a foot of the screen unless an out-of-focus background is desired), the problem of lighting comes up. A spot light or group of spots should be used for the key light. They should form a cross front direction, conforming roughly to the direction of light in the plate. The key spot, or spots, should be positioned so that none of their direct light hits the screen. The fill-in lights can be heavily diffused spots, or the less directional type lamps like rifles and broads. Small spots are very helpful to reach in and brighten shadows that inevitably result from the absence of any front light. Ordinarily clip lights with No. 1 photofloods can often be hidden right in the scene. Spill light should be checked from the projector side of the screen as it shows up stronger and its source can readily be detected.

No process shot should be made without running a hand test to check balance and exposure. Even on stages where the cameramen do nothing but projection process work a test is run for each change of set-up. The common practice, and one certainly to be recommended, is to make a 4"x5" enlargement from the hand test. This may entail an unreasonable delay, in which case the hand test can be compared with a piece of negative from a similar type scene known to have acceptable quality. The finished negative can be less than average density provided it is not badly underexposed, and also provided shadow detail is showing where shadow detail is wanted. For example, if the average printing light for regular photography scenes is 18, the projection process negative should not be *forced* to print on 18. It can print from 4 to 6 points lower and still retain quality.

There are a number of other factors that should be kept in mind. The camera used for making the background negative should be in good condition. If stationary plates are required, the camera pins should conform to standards and tolerances set up by Bell and Howell, jacks should be used under tilt head. The print should either be made in a camera or a camera-movement type printer having film moving and registering pins set as in camera. A special process projector is essential for stationary plate work; that is, a projector with camera type film moving mechanism. The same camera used for shooting the plate can be used on the stage or any camera satisfactory for regular production work. Here any camera ride would be imparted alike to both elements of the composite. For scenes not requiring a stationary background, running shots, etc., the above controls are not necessary.

The action should be positioned at a distance from the screen that most satisfactorily meets all the problems in hand, depth of focus desired, angle of view needed for action, positioning and gobbing of lights, limitations imposed by sets or props, including automobiles, trees, columns, etc., and picture size permitted by light output of projector lamp.

Like all phases of motion picture work projection process presents problems with every set-up, many of which cannot be anticipated. However, the complications of the equipment set-up are fixed and can be ironed out in advance of actual production. An insignificant detail like overlooking a communication or signaling system can do much to seriously delay production and discredit the process.

The Conference Council of the National Conference on Visual Education and Film Exhibition Plans Eighth Session

THE Conference Council of the National Conference on Visual Education and Film Exhibition, met Wednesday, February 23, in Chicago. Plans for the 1938 conference were drawn up, and invitations extended to a number of prominent speakers in the educational and advertising fields. The dates set were June 20, 21, 22 and 23, and the place, the Francis W. Parker School, Chicago.

Among the prominent speakers, who have already expressed their willingness to attend the conference meeting and to talk on appropriate subjects in their respective fields, the following individuals will be heard:

Mr. Haboush, native Galilean shepherd, who has done excellent film work and formulated religious education films; Mr. Robert E. Hughes, who has charge of visual education at the Evanston Township High School; Miss Elizabeth Golterman of the St. Louis Educational Museum; Mrs. W. H. Ross, State Chairman of Visual Education, Congress of Parent-Teachers. Dr. I. E. Deer will conduct some important sessions on motion pictures and the present and forthcoming plans of Hollywood in connection with educational releases. Dr. Deer is the direct representative of Will Hayes. L. A. Hawkins of the International Harvester Co. will be among the guest speakers, representing the industrial phase of motion picture problems.

The Conference Committee has planned to make this year's conference a series of intensive open forums, film exhibitions, and clinical discussions. Production problems, film distribution, methods of handling films, utilization of film programs in educational curricula, and a general discussion of films themselves will form the leading features of the conference.

The banquet in honor of Herman A. De Vry's 25th anniversary in the motion picture field, is being planned by a special committee. The committee personnel includes representatives of the motion picture industry, the schools, and the advertising fraternity.

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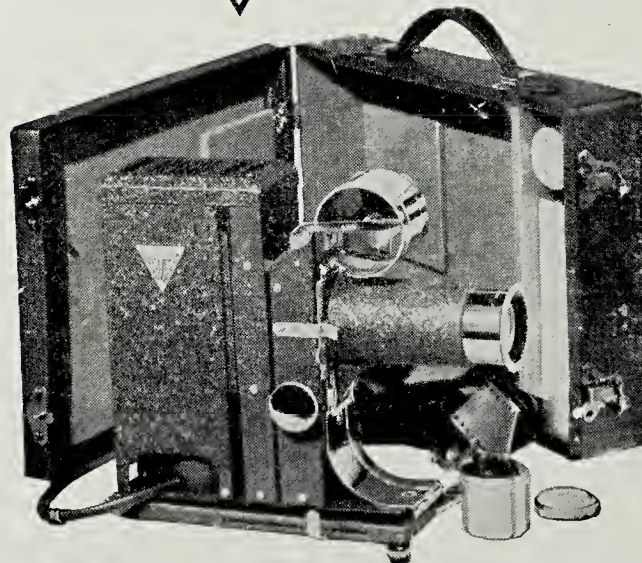
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Technically Speaking—

By H. C. ("DOC") GANTZ, Local 666

THOSE of us who have a habit of leafing through technical photographic publications, especially the handbooks put out by the larger photo-material manufacturers such as Eastman and Agfa-Ansco, have noticed the importance given to the *agitation* of negative material while being developed, rinsed and fixed.

The importance of agitation, however, is not fully realized, I believe. When one has a chance to study and experiment at first hand, a great light dawns, and one realizes just how right the handbooks really are.

For example, if a negative—say a cut film—is immersed in a fresh or nearly fresh developer, and is then left *unmoved* until development is complete, we are quite apt to find a number of conditions which at first are hard to explain.

One of the results of handling a film as just mentioned, is apt to be a mottled or mealy look to the negative. And this is not to be confused with the failure of the dye backing to dissolve away, either. One can be practically certain that when such a condition occurs that it is due to failure to move or agitate the negative while in the developer.

Since all developers are reducing, or oxidizing, agents, byproducts are formed as development proceeds. These oxidation byproducts act in much the same way as potassium bromide—that is, they retard, or inhibit, the reducing action of the developer. Now, if the negative is not agitated during development, even and thorough action of the developer cannot take place. In other words, we get uneven development. Frequently this results in the mottled, or mealy appearance.

Agitation acts to distribute the oxidation byproducts uniformly over the surface of the negative, and so makes for even development.

This uneven development is not likely to occur, of course, when film is processed by automatic machine, or even when rack development is done, if the racks are agitated very frequently. It is not enough to souse them up and down at the start of development, but they should be agitated at short intervals during the entire time that development takes place.

Agitation of negatives is also of great importance in fixing. Naturally rapid and even fixation cannot be had unless the film is moved around to allow thorough access of hypo to every part of the negative. Also, agitation is important in preventing the appearance of the so-called "dichroic fog" which appears as an iridescent greenish or reddish metallic shine on the surface of the film when seeing it by reflected light. Under transmitted light, dichroic fog appears pinkish in color.

When an emulsion is first placed in a fixing bath, the initial effect of the hypo is the production of an *insoluble* compound. The next stage of fixation is the changing of this insoluble compound into a soluble one, and fixation then proceeds. Obviously, then, one should always use care to see that fixing baths are fresh, and that film is left in the bath sufficiently long to insure proper fixation. The

frequent agitation of both negative and print during fixation aids greatly in thorough and even fixation.

It is not generally known that a fixing bath works at its maximum speed when it does *not* contain an excess of hypo. Too strong a concentration of hypo will actually retard fixation, rather than speed it up. The Eastman people state quite positively, moreover, that the use of a hydrometer to indicate the state of exhaustion of a fixing bath is useless.

When a fixing bath begins to become cloudy or froths, it is a sure indication that the bath is losing its ability to work properly, and it should be discarded. Never add additional hypo to an old fixing bath. Throw it away and make up a fresh bath.

With the approach of warm weather, the use of a chrome alum rinsing bath preceding the fixing bath is to be strongly recommended. This acts to harden and shrink the gelatine, and prevents trouble due to the heat. Also, the use of such a bath allows quicker fixation, less washing time, and promotes quicker drying, since the gelatine is not so swollen, and does not hold so much solution.

Also in warm weather, it is advisable to watch the tanks for cleanliness, and they should be occasionally given a sterilizing to prevent bacteria in the water from reacting with the sulphite in the developer. This reaction is perhaps the most common cause of fog, because the product of the bacteria-sulphite reaction is *sulphide*, a notorious producer of fog.

Eastman recommends that deep tanks be scrubbed thoroughly with clear water before adding new solutions, and for this purpose a double-sided brush is available. In addition, it is well to sterilize the tanks with a chloride of lime solution.

Stone tanks should be first thoroughly scrubbed with clean water, after which a paste of chloride of lime and water should be well scrubbed on the surface of the tanks. Follow this with *thorough rinsings*, five at least, with water before adding new solutions.

Wooden tanks are best cleaned with a stiff wire brush, then filling the tanks with a chloride of lime solution made up of one part of stock chloride solution to six parts of water. Allow this sterilizing solution to stand over night in the tank, then empty, scrub thoroughly again, and give five or six washings.

The stock chloride of lime solution should be made by preparing a 4% solution of sodium hypochlorite (chloride of lime) and adding to this a 10% solution of sodium carbonate until no more precipitate forms. After settling, the clear liquid should be drawn off and stored as the stock solution.

While we are talking of cleaning, did you know that metal film clips, mercer patches and the like, can be cleaned by soaking them in a solution made of 32 ounces of 28% acetic acid with water added to make one gallon. Soak for one hour, then scrub thoroughly in clear water.

Well—last Sunday being a nice warm sunny day just before the advent of Spring, yours truly got out the old Graflex and gave it a thorough going over inside and out. A vacuum cleaner with a brush attachment was used to get all the dust out, including that in the bellows. Then the back was removed, exposing the curtain rollers and the small rollers over which the shutter travels. These lat-

ter had been chattering and making a whirring noise. By means of a pointed wire, a drop of light oil was placed at each point of friction. Upon assembling, the old box performed like new.

Why not go over that pet Mitchell or Bell pretty soon and give it a good "look-see?"

We are usually pretty careful to use a sunshade when making shots, but lots of time we neglect to do so. If it was thoroughly understood just how much better results are to be had, none of us would ever make a shot without a sunshade—and this goes for our still stuff as well. It is easy to demonstrate that the use of a sunshade not only makes for clearer, snappier negatives, but it acts as a protection for the lenses as well. The inner surfaces of the modern high speed lenses are quite prone to reflect stray, unwanted light around inside the lens, and the result is detrimental. Many times the use of a proper shade will remove those mysterious, flat, dull results which sometimes mean the difference between a honey of a shot, and just a fair picture.

This seems like a good time to suggest that when we are waiting for the April showers to make May flowers, that we go over our motor cables and switches. Nothing is so annoying as to have a switch suddenly develop a short just as we're ready to start 'em rolling on an important scene. I've been kidded about the heavy cable I use on my motor, and the heavy switch, and the heavy twistlock connectors, but, take it from me, children, no part of the camera equipment gets more severe usage and even abuse, than that old motor cable and switch. Knocked around, stepped on, dropped on concrete, dragged through dirt and even mud, it's no wonder that sometimes the dern things rebel. So why not forestall such trouble now, when we've got the time before the rush? (Hoping there *will* be a rush, of course.)

Not so long ago we had an opportunity to examine and handle the new Model C Argus camera, and we were favorably impressed, both with the design and the workmanship.

In the older models the design of the back left more than a little to be desired, especially the tendency for the backs to open and spoil a lot of shots. In the new camera this seems to have been licked. In addition there are a number of features that will appeal to the user, such as the range finder which, although not coupled to the lens, is mighty handy to have, and as it is built into the box, it is well protected.

The design of the shutter is extremely clever, and one needs only a minute to learn to handle it. There is a tricky speed changing gadget which, once understood, need never give a bit of trouble. The shutter leaves are *behind* the entire lens assembly, making it possible to use different lenses. However, we noted that the maximum opening of this shutter, plus its position, will undoubtedly preclude the use of lenses of focal length much greater than the standard 2 inch lens. This is somewhat unfortunate, but at that, the camera is a remarkable piece of work, and is certainly an outstanding piece of equipment, especially when one considers the low list price.

The finish is excellent, and the whole appearance of the camera gives the look of a precision instrument costing much more than \$25. All in all, it appears that the sponsors, the International Research Corporation, have added another feather to their caps. Let us hope that production on their standard models will catch up with the demand so that the Model C will soon be available.

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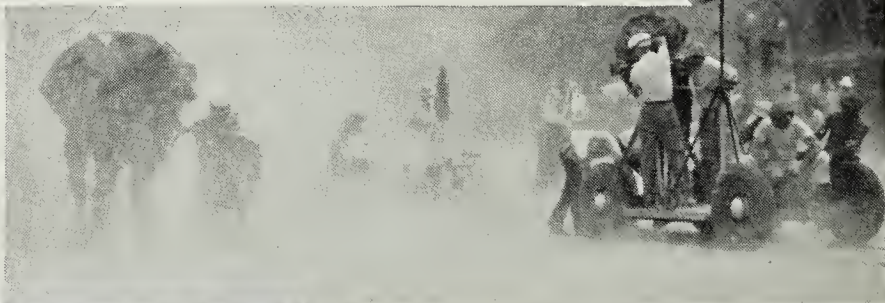
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CARBON ARC LIGHTING MEETS EVERY DEMAND OF THE CAMERA

Behind the scenes in the desert during the filming of Selznick International's all technicolor production, "The Garden of Allah," co-starring Marlene Dietrich and Charles Boyer. David O. Selznick, producer of the Robert Hichens play and book, and Richard Boleslawski, director, worked under incredible difficulties amid insufferable heat and raging sandstorms in order to capture the loneliness of the Sahara wastelands. Howard Greene photographed the all technicolor production, with Hal Rosson as photographic adviser.



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Cinemabiography

I was born in 1906 or 1907. Just what year, seems to be good for a family argument, on any dull evening. At any rate, I went through the normal procedure of grammar school and a couple of years of De Paul Academy. One summer, Red Fellingner told me of a job at Rothacker Film Company, so I stood, with hat in hand, before George Gibson, superintendent, (now Brulatour representative, in Hollywood). He gave me the job for the summer. When the fall school term opened, I had fallen in love with six or seven film cleaning machines and the nice pay checks, so I decided that an education was a waste of time and that I could get along better with this movie racket. Furthermore, I couldn't learn to rack, wash, tint, inspect, clean and wax film at De Paul. My mother had different ideas about it. I couldn't learn civil engineering, law or medicine at Rothacker's lab. I compromised. I went to DePaul at night and worked at Rothacker's during the day. This continued until a heavy order came in from the coast for hundreds of prints of "The White Sister," "The Covered Wagon," "Tolable David," and a few more. It was then that De Paul lost its student and Lippert tripled the pay checks in overtime.



Orlando Lippert

In 1927, after a little time selling bed sheets and bed pans to hospitals, got a job with Fox News in Chicago as cameraman. The salary was less than I got for selling bed sheets and bed pans, but then it was more along my line. I always wanted a private office with a closed door and a desk in which I could sink my spurs. However, I soon learned that I had little time for that. A guy by the name of Lindbergh was eluding our constant vigil. Nungesser and Coli had just flown the Atlantic and arrived at Chicago. The Kentucky Derby and the Indianapolis Races were something that caused all hands to use their wits in racing to Chicago for a scoop, by having the film on Chicago screens the same day. Old crates, held together with baling wire and chewing gum were flown through thick weather without beams or lights, by such old timers as Phil Love, Eddie Balleau and Speed Holman.

Then followed the years at Paramount from 1930, after the closing of the Fox silent reel and the subsequent purge. These years produced the normal run of news stories and feature stories. At times, like the other boys, I have run into some unusual circumstances on stories which helped remove the monotony of the yearly schedule. The launching of the dirigible "Akron" at Akron, Ohio, the two stratosphere flights from Rapid City, South Dakota, the rise of Alf Landon to presidential candidate, the Toledo strikes, the Detroit and Flint strikes, the great flood of 1937 and the Memorial Day Riots at the Republic Steel plant in South Chicago are some of the stories that may be considered highlights. The last mentioned assignment took me to Washington, D. C., for the Senate investigation, where the film was used as evidence; also, to the subsequent coroner's inquest at Chicago. At the Chicago inquest, the Paramount projection room became the court room where the pictures were shown and the testimony was taken before the jury from Harold Witt and myself.

However, I'm still looking for assignments, routine or otherwise, on account I've got to start saving a school fund for Norman Eric Lippert (two months old) the offspring, so that he can go to DePaul and learn civil engineering, law or medicine.

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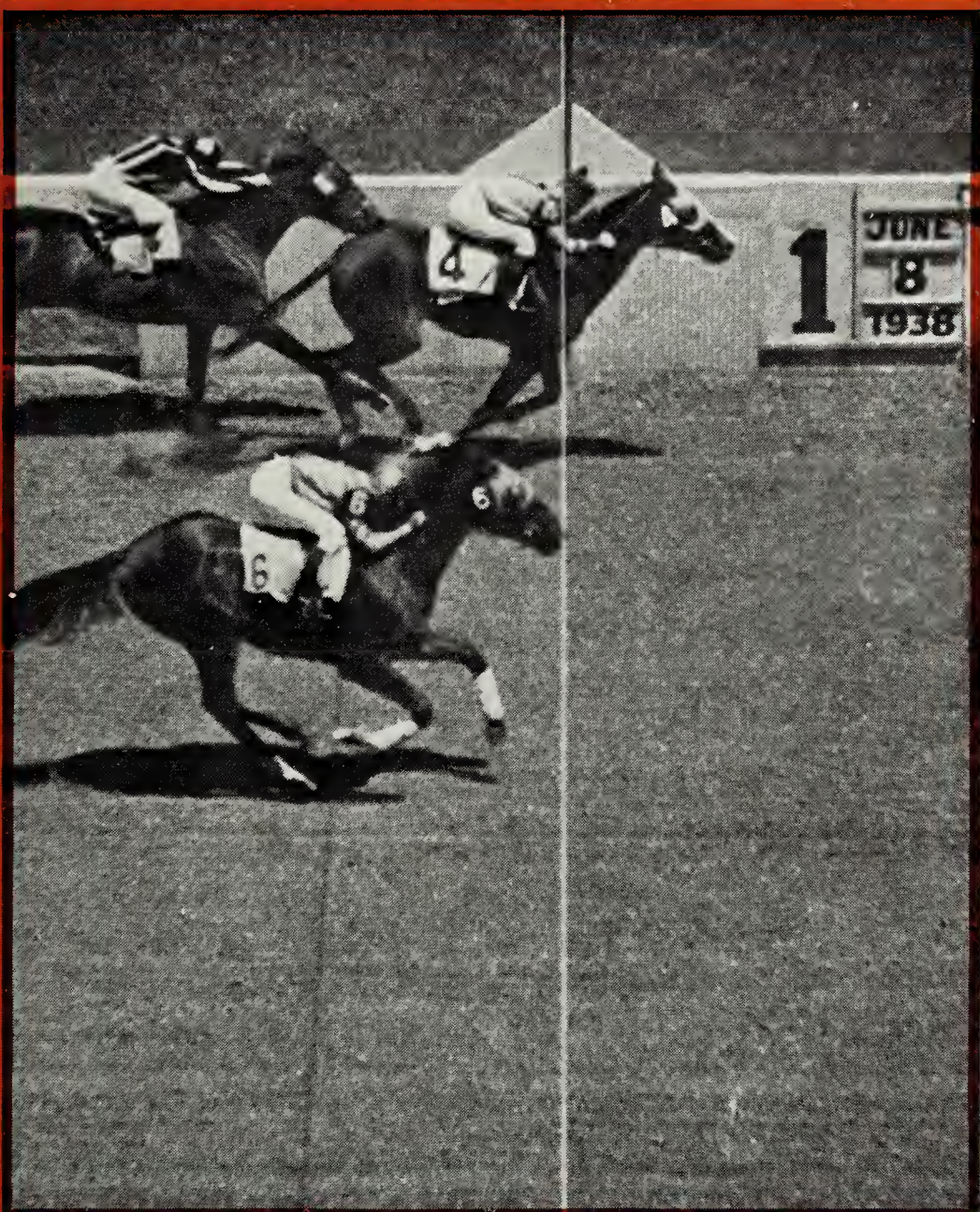
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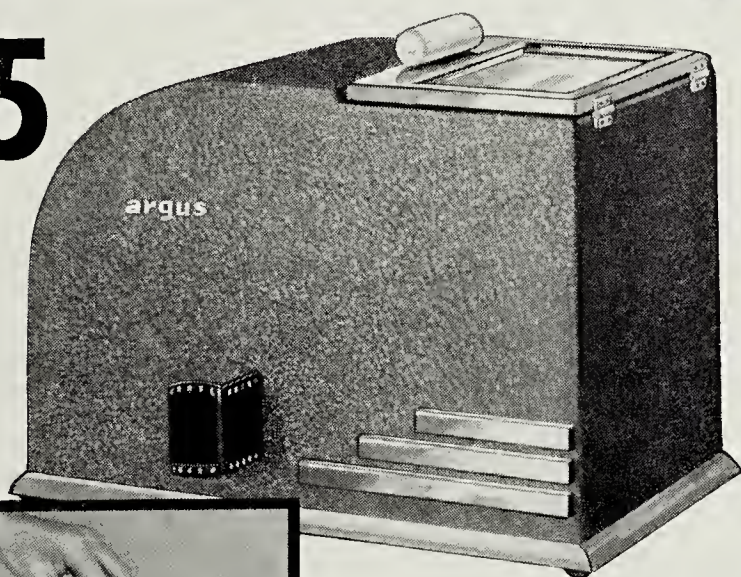
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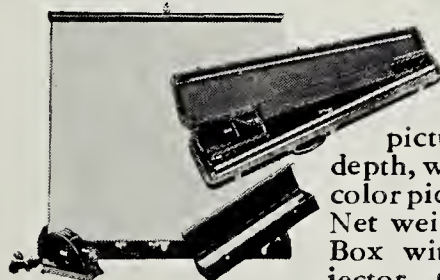
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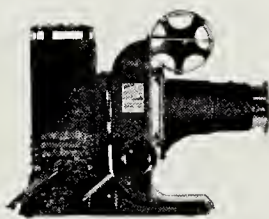
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CARBON ARC LIGHTING MEETS EVERY DEMAND OF THE CAMERA

Behind the scenes in the desert during the filming of Selznick International's all technicolor production, "The Garden of Allah," co-starring Marlene Dietrich and Charles Boyer, David O. Selznick, producer of the Robert Hichens play and book, and Richard Boleslawski, director, worked under incredible difficulties amid insufferable heat and raging sandstorms in order to capture the loneliness of the Sahara wastelands. Howard Greene photographed the all technicolor production, with Hal Rosson as photographic adviser.



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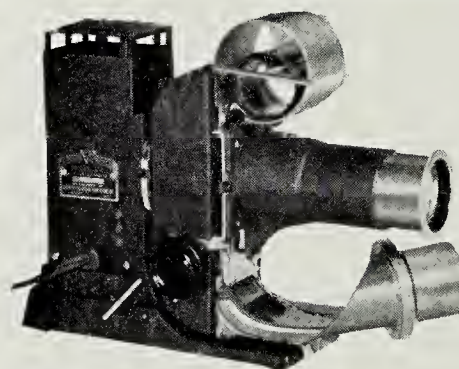
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The Photo Finish at the Race Tracks come definitely under the jurisdiction of the I. A. T. S. E. camera locals. Lincoln Fields Track at Crete, Illinois, used a Local 666 crew to photograph the finish of each race while the plant was in operation there, Arlington Race Track is now operating with a Local 666 cameraman on the camera. Other tracks will have to follow suit and before the season is over all tracks who employ the photo finish will be using professional Union Cameramen.

Business, we believe, is showing a decided improvement as evidenced by the number of new jobs recently.

Charles Geis and Ray Soitz are making the National League Baseball picture for Burton Holmes. Harry Birch shooting color for Wilding's. George Leontough and Jim Troy on the payroll of Industrial Films Company of Detroit. Oscar Ahbe and Rufus Pasquale engaged by Audio Productions for work in Kansas. Orlando Lippert on a traveling assignment. Virgil Bowers planted with Filmack. Frederick Gately is set as second man with Chicago Film Laboratory. George Hoover and Jacob La Fleur are the second crew with Wilding's. Shorty Richardson will do the slow motion work for Burton Holmes on the National League Picture.

The many friends of Max Markmann will be sorry to learn that he was severely burned by live steam which was accidentally released by booster valve of locomotive while

he was operating his camera from the tender during a Newsreel assignment.

Max was rushed to Harkness Pavillion Hospital at Medical Center, Rockefeller Center, New York, and while reported out of danger it will be many weeks before he can be around again.

National Conference on Visual Education and Film Exhibition Draws Large Gathering

In its eighth session the National Conference on Visual Education and Film Exhibition drew a gathering of over 600 enrollees.

Outstanding visual educators, motion picture executives, industrial film producers, and representatives of various commercial organizations using motion pictures met June 20 to 23 inclusive in Chicago, to view the latest educational and commercial film releases.

Following each film exhibition was a discussion in which industrial film users exchanged their ideas with educational visual heads, directors of visual departments, and others. A great deal of important information was contributed along the lines of production, distribution, and utilization of motion pictures for sales, advertising, and pedagogical purposes.

Among the films exhibited were: "German North Sea Coast" by Fred Semb of the German Railroads, Chicago; Fireman's Fund Insurance Co.'s "Remember Jimmy"; DeVry School Films: Social Security Board's "Today's Frontiers"; WPA's films "Hands," and "We Work Again"; International Harvester Co.'s "Modern Education at Beaverton Consolidated School"; Borden-Wieland's "The 80 Years"; World's Peace Ways "Thunder Over the Orient"; Ford Motor Co.'s "Making Safety Glass" and "Yellowstone National Park"; and a large number of other films of the Government Documentary type, advertising, training, and classroom study types.

Sessions were devoted to open-forum discussions conducted by such authorities as Dr. I. E. Deer of the MPPDA on "Human Relations Films"; A. P. Heflin of Lane Technical High School on "Movie School Production Problems"; Stuart Grant of Pure Oil Co. on "Laboratory Problems in Film Production"; L. W. Cochran of the State University of Iowa on "School Distribution and School-made Films"; Wm. E. Morse, Co. Supt. of Schools, Malad, Idaho, on "The County System of Film Distribution"; O. H. Coelln, Editor, "Business Screen" on "The Correlation of Educational Films and Industrial Problems"; George Rilling, Supt. of Schools, Anna, Ohio, on "School Films," and others.

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The Thirty-Fourth Convention OF THE

I. A. T. S. E. GETS UNDER WAY AT CLEVELAND, OHIO, JUNE 6th, 1938

THE lane of bannered lamp posts, adorned with giant "Welcome" I. A. emblems, forming the line of march from the Hollenden Hotel headquarters leading to the huge Cleveland Public Auditorium, forecast for the Delegates what was probably the most unusual in the way of Convention opening sessions. Upon entering the gaily decorated hall, the exacting and elaborate preparations made by the joint Cleveland Committee were palpably in evidence on all sides.

Early arriving Delegates and guests were entertained by the music of Angelo Vitale's Band, which ran the extremes of the scale from swing to sentimental melodies, and which afforded the audience keen enjoyment while awaiting the signal for convening. The ever-popular "Dixie" drew the first burst of applause from the Southern Delegation, with the Canadian representatives displaying their pleasure upon the rendition of "The Maple Leaf Forever."

Judicious planning and direction, tinged with a theatrical artistry never before witnessed at an opening day session, was at once apparent when the orchestra struck up "The Star Spangled Banner," which was the cue for the unfurling of a huge American flag in the direct center of the auditorium.

This was immediately followed by International President Browne making his entrance, accompanied by President Green of the American Federation of Labor; the Mayor of Cleveland and the Governor of Ohio; Sidney Kent, President of 20th Century Fox Film Corporation and Chairman of the Motion Picture Producers' Committee, as well as several other guest dignitaries. As this group proceeded to the rostrum, the strains of "Hail, Hail, the Gang's All Here" echoed throughout the Auditorium. Upon International President George E. Browne's ascension to the dais, the curtains immediately in front of the back drop were slowly drawn apart, revealing an oil painting of President Browne of picture screen proportions. This occasioned a hearty rising ovation from the entire delegation.

Mayor Harold H. Burton of Cleveland, the opening guest speaker, was highly complimentary in referring to Third Vice-President Harland Holmden as one of the outstanding Labor leaders and likewise was very generous in his praise of both Cleveland Locals. He then paid tribute to the International and the American Federation of Labor, stating: "Your organization is tremendous; there is no question of the great might of the stage and the motion pictures of today. Pictures influence the nation and we are proud of those who handle that industry today. I wish to pay my respects, also to the American Federation of Labor, to which you belong, to the Cleveland Federation of Labor, which represents you here, and your own Organization. We believe that today Organized Labor plays a full and important part of our life in America. We believe that only through the organization of Labor, as well as the organization of employers, we can move ahead in a way that is fair to everybody concerned. We are, indeed, moving ahead. We are in need of recovery; we believe that we can recover if all the citizens of the United States join hands to do it. We welcome you here, as you have done your part in bringing about progress in America."

Greetings were next extended to the Convention by President Albert Dalton of the Cleveland Federation of Labor, who also voiced his appreciation for the cooperation accorded him by the Cleveland local organizations and expressed a willingness to reciprocate if ever called upon in the future.

A brief welcome was also accorded the Delegates by Thomas A. Lenahan, Secretary of the Cleveland Federation of Labor, in behalf of that organization, volunteering any assistance that he could render to make the stay more pleasant for those attending the Convention.

Chairman Holmden, in introducing the next speaker, informed the assembly it was a distinct privilege for the Alliance to present a man associated with the theatrical industry, strongly instrumental in bringing harmony into the ranks of Capital and Labor; a man who has made a name for himself by his consummate fairness, concluding his remarks by presenting Sidney Kent, President of 20th Century Fox Film Corporation and Chairman of the Motion Picture Producers' Committee, who delivered a talk to the delegates that was laden with sincerity."

"A few moments ago sitting in the Hotel room Father MacGuire said he was a little bit surprised to see a representative of the other side, so to speak, attending a labor convention, and I told him, 'On the contrary, that I felt very much at home, that the atmosphere of labor was no stranger to me.'

"It happens that I am one of the fortunate ones. My honored father grew gray working in the ranks of labor. He was for twenty years on the general board of the Carpenters and spent his entire life in the Labor Movement. As a youngster he apprenticed me and I belonged to the union at Lincoln, Nebraska, and carried a card for a considerable period of time. And I think perhaps that one of the greatest assets I possess, and I am fortunate in having it, is to be able to sit across the table and look the other man in the eye and realize something of the problems that he is up against.

"I want to bring you the greetings of all of those in the motion picture industry. Your convention is meeting under troublesome and touchy national conditions, but I think we are all very, very fortunate, those of us who are privileged to be in any end of this great amusement industry.

"About fifteen years ago I was asked, with Mr. Schenck, to serve on a conciliation board that we established at that time for the adjustment of wage scales and the adjudication of disputes in our industry, and I have served in that capacity for fifteen years, and we have been very, very fortunate on both sides in that we have probably compiled a record of less interruption of employment, of fairer working conditions in my opinion than exist in any other industry that I know of in the country today. And in spite of the complaints that are always present on both sides and are only natural and normal, I believe that within the possibilities that it is capable of providing that we went through the depression and will go through this depression with less damage to Labor than any other major industry that I know of.

"Now, boys, that hasn't always been easy. It wasn't accomplished with as much ease, as I can make the statement to you, when you consider the complexities of this

great entertainment industry that we serve and operate. When you figure a few years back that the job we had in turning over from silent to sound, where thousands of new departments were added to our industry that we knew nothing about previously, and all that was accomplished by the men in this room, plus the men on our side, with practically not one hour's loss of working time to anybody, it really speaks well for someone.

"I want to say to you that the agreement that we entered into years ago that has been so faithfully lived up to by both sides could well be copied today by many other industries in America that have sought new and better ways other than the ways of co-operation and patience and good faith in settling disputes between Capital and Labor.

"We have had those among us on both sides that felt they could have done much better. We have had also some of those who wanted to try the new and experimental thing which gave neither side any assurance that it would bring them out safely in the end. But we stuck to the thing we started fifteen years ago, and I think all of us today can be very, very thankful that we did, and I want to give you a reason why, because I think there are some who still do not understand why that agreement was formed and entered into.

"You know in our business the world is our stage and we shoot against every nook and corner of it as a background. There isn't a period of five years goes by that you will not find a camera crew operating in some part of the United States, I don't care whether it is Yellowstone National Park or Broadway, New York, or on the Lakefront here in Cleveland, some place within that period provides a part of a motion picture and this great growing industry, which is still in its youth, you might say. We found it impossible to meet the conditions that existed in hundreds of localities and go forward. We had to have a national and uniform pattern that we might move from spot to spot and from location to location without interruption of the work involved. That was the reason why our present agreement was entered into, but there was one important thing that that agreement did. It said to the producers, 'You must send your head man, the president of your companies, to sit around a table. We don't want any second lieutenants.' And on the other side, the International Presidents themselves, faithful to their agreement, have always sat across the table from us.

"I believe that the record that that industry has compiled, if investigated, would prove that we have had less interruption in employment, less hard feeling, less recrimination, and have built more good will than any industry that I know of in the country, and, boys, that is something that is worth fighting for and protecting."

Upon concluding his interesting address, the Delegates accorded the speaker a genuine ovation, in behalf of whom Chairman Holmden thanked Mr. Kent, reaffirming his earlier statements that he has done more for show business than any man in it by keeping harmony within the ranks.

Remarking that the speaker about to be presented needed no introduction to the Delegates, Vice-President Holmden presented President William Green of the American Federation of Labor, who delivered a lengthy and inspirational message to the Convention. In opening, he stated: "I wish that some of those who have attempted and are attempting to destroy a great movement such as the American Federation of Labor, might be privileged to look in on this magnificent gathering this morning. I am of the opinion that they would, at least, gain the impression that they have undertaken a task that was absolutely impossible, for just as sure as your splendid organization

will ever remain as a collective bargaining agency in the great motion picture industry, just as sure as it stands defending this home you represent for all ages, just as sure will the American Federation of Labor ever remain!

"You are an integral part of this great American Movement—an important part of it. You are functioning with it; it is a part of the institutional life of the nation and, with you, I am proud—proud this morning of the record made by the great American Federation of Labor during more than half a century of actual service.

"I extend to you my personal felicitations and I express the hope, a hope that I know will be fully realized, that you may hold in this great City of Cleveland the finest, best and most successful Convention that your splendid organization has ever held and when you go out, back to your homes, your villages, your communities and to the cities from whence you come, I hope and trust you will go out a united army with renewed determination—and come what may; whatever may be your experience, that this great Movement you represent shall live and function and prosper and along with it the great American Federation of Labor shall ever remain as a part of the institutional life of our nation and as a great American institution."

Touching on the current economic situation, which he presumed was indirectly affecting our organization through the millions of unemployed, who were prospective theatre patrons, President Green expressed the belief that it was largely a psychological situation growing out of fear and that millions of workers are suffering from the "jitters."

He likewise elaborated on the now-pending Wages and Hours Bill, which will prove beneficial to all workers, adding that the American Federation of Labor is using all possible means to secure passage of this legislation. Emphasizing the dire importance of its enactment, President Green appealed to the Delegates to let the Senators and Congressmen in Washington know how they feel on the subject of the Wages and Hours Bill, and in that way the Federation will be materially aided in its fight to protect the interests of the workers.

The A. F. of L. President went into great detail in commenting on the house divided within the ranks of Labor, continuing: "I cannot but help to refer to the fact on occasions such as this that the division existing within the ranks of Labor still exists. It is still there. It should not be there because Labor ought to be united. There ought to be perfect cooperation between all organizations of Labor and if the American Federation of Labor could have its way Labor in America would be thoroughly united and completely solidified. We place the responsibility and the blame for the breach and the division created within the ranks of Labor fairly and squarely where it belongs—upon the leaders of the C. I. O. and the ambitious men who speak for it.

"The A. F. of L. was organized more than a half century ago. It was led and administered by men who learned the philosophy of Trade Unionism out of life's experience—in the best Labor Universities that had ever been organized and today its administrative as well as its organizational policies represent the best judgment of men who have gone through these years of experience. Do you think men learned anything during a half century? Could their judgment be wrong? Does experience mean anything? Where must we learn the lesson—shall it be in life's experience or out of feeling and hatred that springs from ambitious minds and ambitious hearts."

Following in this same thought, President Green pointed out that the policies of our organization would

"IT'S A PHOTOGRAPH FINISH—"

By H. C. ("DOC") GANTZ, Local 666

THIS month, in lieu of my usual technical dope, I'm going to give a brief description of the way in which members of 666 are now handling photographic finish photography.

Following the start of a nation-wide drive by I.A.T.S.E. officials to bring this work under the jurisdiction of the three cameraman locals, the Lincoln Fields Jockey Club, Inc., at Crete, Illinois, was the first to sign up, under the persuasion of W. H. Strafford, Business Representative of Local 666. He assigned the writer to this track, as the first union cameraman to handle race track photo finish work.



H. C. Gantz

The system followed has been developed by Arthur Kuprion, of Louisville, Ky., who was elected to membership in Local 666 at the last monthly meeting.

Working for five years to perfect the formulae and processes, Kuprion has at last worked out a method that is giving the best results in use by any of the photo finish workers in this country. Local 666 is fortunate in being able to have the services of Kuprion, and his election to membership in 666 is but the start of a training program inaugurated by the local, whereby it is planned to take a sufficient number of qualified men, train them in the methods, and give them the necessary secret information so that they may take over complete charge of the work, no matter under what contractor.

In most cases, the tracks themselves own the equipment, and furnish all supplies. At Lincoln Fields, we used a standard Bell & Howell 35mm camera, fitted with a check-pawl shuttle, and a special high-speed high-torque 110 volt motor. The camera has been modified by the addition of a film chute leading from the lower side of the sprocket, which guides the film directly out through a slot in the back of the camera.

In actual operation, a basket is held with its mouth near the chute, and when the operator closes the switch approximately twelve feet of film pours into the basket. As the camera stops, the film is clipped off, and the basket lowered directly into the developer which is in an enamelware tank surrounded by a water bath, as are also the short stop bath and the fixing bath.

Development is complete in *twelve seconds*; the film is then transferred for a dip into the short stop, and then goes into the fixing bath. With fresh hypo, fixation is complete in about thirty seconds. The odd thing about this special fixing bath is that when it is two days old, it works considerably faster than when new!

After fixation, the film is given a brief rinse in plain water, and is then led into a special, combined still projector and enlarging machine developed by Kuprion.

The Illinois State Racing Commission demands that a negative be made of the finish of every race, but the judges will not call for the pictures unless the finish is very close. We average about three photos in eight races. *And there are no retakes!*

If pictures are called for, we generally know up in the tower whether the pictures are for win, place, or show, from the report of the cameraman as he shoots the finish. If the winning horse is leading by a wide margin, but it looks close for place and show, the winning horse may be

over the finish line before the camera is started for the desired group. When the close group is about forty feet from the finish, the camera starts, and by the time the horses are a foot away from the line the camera is running at its normal speed, about 200 frames per second.

The horses cross the line at an average speed of fifty-five feet per second, so that the camera speed of 200 frames is amply close enough to insure proper coverage.

If the judges call for photos, by the time they climb to the top of the tower, the wet negative is threaded and ready to project onto a 16x20 screen built into the wall of the darkroom. The judges open a sliding panel after closing the outer door, and the film is run up to the critical frame for their inspection within 60 seconds after the race finishes. As soon as they are through, the operators cut away all but about two feet of the negative, which is then passed over a squeegee which, together with a powerful blast of air from a motor driven blower, removes all surface water from both sides of the film.

Being again threaded into the projector, a special carrier is swung up into position in front of the screen, and two lantern slides are made. While these are being developed and fixed, the projector is automatically changed over into an enlarging machine, and the operator starts making enlargements on paper. We usually make six of these, four of which are posted up in various places, another going to the state racing commissioner on duty at the track, and the last being kept for our files. These pictures are about 6½x10 inches in size.

Before the enlargements are fixed, the slides are on their way to the north end of the grandstand, where they go into a projector to be thrown onto a screen four by five feet in size. The second slide is held as a replacement in case the heat damages or stains the first one, which, you will realize, has had only a very brief washing.

After a brief stop in the hypo, the enlargements are placed for a few seconds in water, then go between blotters for a bit of drying, are then trimmed, the winning horses' numbers are written on, and the prints are delivered to a waiting messenger. The usual total time up to this point runs about six minutes.

We are at present using Agfa Supreme in 400 foot rolls. The special developer has the effect of increasing the Weston daylight speed rating of this film from the usual 40 to 64. Our average exposures run about 1/800 of a second, with a shutter opening of 25°. With a light reading of 250 the diaphragm will be stopped down to about f/5 or 5.6 and the exposure is rather on the full side.

Although developed with extreme speed, the quality of the negative is on a par with the finest work of any laboratory, as can be sworn to by any cameraman who has seen the work.

The solutions used are naturally a trade secret, to be given out only to the men actually called on to cover jobs at the various tracks. It is violating no confidence, however, to say that the developer actually contains a hardener. This is necessary because of the protection it affords the wet emulsion during projection and the rapid handling it receives during the work. Although the solutions are kept at 76° Fahr. by heating units or refrigeration, the wet emulsion is surprisingly tough and it requires a distinct effort to scrape it loose with a finger nail.

(Turn to Page 13)

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BETTER THINGS for BETTER LIVING through CHEMISTRY

Screenings, Thither and Yon

By ALMA MAE BUTLER

IT RAINED pitchforks! Just as it had done for the past month, days on end. Out in the country one could have barefooted around in a pair of old jeans, wading to his heart's content. It's nice having soft rain patter upon one's face; mud squishing up between the toes.

But this was the city! One of those places where the rustic self is chucked away like an old, plush album; where things seek a higher level; where struggling masses enslave themselves to a tyrannous time-clock for the mere glamour of its paltry yield; where Sunday is spent feeding peanuts to the elephants or chasing a pellet over some crowded green, in all probability rueing a wild previous night and its resultant miserable bloat.

Still, it rained! And still, t'would have been nicer feeling its patter upon the face; mud squishing up between the toes—but I slumped down in the lobby instead.

It was one of those snooty, upstart, resident hotels that go to make up any sizable city; where uniformed lads dash about with no decided speed, dependent mainly on the tip; where "No Dogs," "No Cats," and above all, "No Kids" adds great decorum to the lease; where but a couple of soupy days makes a veritable menagerie out of the place.

Behind its cigar stand shifted the swarthy enigma who dispensed chewing gum, shaving cream or lotions, awaiting a chance command. Hangers-on tinkered aimlessly with the slot machine and ran through all the magazines without spending as much as a dime.

Everything in the lobby combined in a mass attempt to thwart any comforting down. What few pieces were scattered about looked like relics of the Inquisition. Formidable, high-backed chairs stood guard at the entrance to protect the menacing sofas. The whole forbade any encroachment upon the rights of the old crones who cluttered up the place. I watched them for some time, amused with their line of chatter. Occasionally I caught stray snatches of the interchange of tattle. Any outsider who considered entry immediately sized up the lot and then hurriedly withdrew. This, of course, but served the little magpies another fresh morsel for whispered slaughter. Sooner or later my turn would come; 'twas wise to have it over. With this I left, but not without stigmatizing such spotless virtue as the result of lack of opportunity.

Only one person had the monopoly on knowing all the frailties of that hotel world; Mary, the hat check girl. Untrue to form, Mary was sort of a stringy, little sparrow, devoid of all feminine guile and natural as a hungry hedgehog, but her freshness and suavity added a degree of wholesomeness to the place. Obviously, Mary, more or less, was a woeeful shock to incoming fops who made a practice of amassing amours by virtue of checking hats. She certainly had a line-up on that crowd! There was old Jones up in the pent-house who thought nothing of trouncing his wife. Everyone suspected her only reason for sticking it out was his pile of good, round dollars. Many of the guests sneaked over to the corner drug-store to load up their hungry gullets. Mary could have told you that the world was full of nincompoops who spared no ends to keep up a bold, stiff front. But

Mary just never would tell. Well; one had only to look in at the cocktail lounge to find out for himself.

"The whole world's a stage." Particularly a cocktail lounge. It could be one of those smelly dives down in the Sizzling Sixties or a sumptuous affair of velvet and marble; its aims are just the same—to cater to a trade that seeks a wet whistle, and to rake the shekels in.

Here was life, the very thing that kept the hotel out of the red. It was done in exquisite taste. Two huge, cloisonné vases flanked the entrance. They might well have been old, battered garboons from the way they were used. It was a noisy crowd. Loosely they straggled in to line up at the bar or sit down at one of the tables. Likewise they straggled out. The waiters in starched, white aprons carried on their work with much click and finesse, but when the occasion arose, I noticed they never failed to edge up to one or the other for some side-mouthed crack on the ever-passing show. And also that the service par excellence went to the limited few who all but slept at the place.

Most of these were of that school of old doaties that always wail of being misunderstood; flabby, indolent, sensuous—every last one of them beyond that stage where things should make much difference. One's wife was gallivanting all over the south getting sun-tanned while the poor fossil at home pined away by flirting with every catch-as-catch-can. Another's was a less fortunate lot. His ball and chain sort-of stuck around the home plate, knowing that the old buzzard with one foot in the grave was weak when it came to collecting a cute telephone number. Down toward the end of the bar sat the tipling Mopey Dick; Mopey, drowning out his lady-loves that kept him in constant hot water.

Above the clatter sounded the irksome thump of the music machine. I knew with sickening assurance it was nothing but that old die-hard, "Martha." They played it forty times an hour. Oh well; even that was better than the radio's blating out the baseball scores, or some vapid sop's hitting up Mozart over at the tin piano.

The very kindly, little, old lady from the hotel in the next block entered for her usual search around. Five years previous to this she and her daughter arranged to meet at this place. The story goes that the daughter met death en route, but in the dear, old lady's mind there seems to be no lapse of time. Not a day passes that she doesn't come in to keep that rendezvous, despite the fact the manager at times goes to great ado to insult her out of the space. But the guests are all more humane and suffer her repeated intrusions with pity.

I sat where I could survey the whole room and study each individual. Over by the window slumped a frumpy, middle-aged woman, staring out at a luxurious sedan.

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This was late afternoon; she had come in some time that morning. Mary would know the details if one could get her to tell.

Meanwhile, things went on. The very blonde smoothy who spread charm to the dice game glanced up with a decided "Ho-Hum." McCarthy, that red-haired college professor, turned vagrant after office hours, had again reached the stage of over-indulgence, and began to psychologize. When McCarthy got that way he usually stripped one's character cold. Some fat, bosomy gal just then strutted in, parading a pink-ribboned Spitz. Danny, the lounge attendant politely crossed over and asked that her purp be excused. At this a somewhat surprised and very disgruntled two turned and stalked out. Concurrently, a sassy, little, wire-haired terrier was suffering the same indignation. Midway they met. The volley of yips and yells that ensued probably settled years of stored-up canine grievances, and took care of those to come.

The woman who stared out into the dripping open, had joined up with a party of sympathizers who were offering sisterly advice. Within a quarter hour everyone in the lounge knew of one more poor wife who had worked her knuckles to the bone for some thankless, contemptible beast. Most of them would have given anything to get in on the scene when the old fox met his unhappy mate. Exhibit A., a sack of pepper reposed in full sight as a warning to all erring knaves. This, one of the lot had managed to wrest from the wife before she walked out into the night.

And so on, to continue with what might be called, "The Impressions of a Barfly." The music machine kept up its everlasting thump of that hated ditty, "Martha"; the dice kept rattling and spilling out beneath the smirk of that blonde decoy; a thoroughly sodden pair on the farthest sofa started necking for all they were worth; the tinkling of glasses; more thumping; laughter that morning so young and fresh, but raucous and lewd by night; America's great indoor sport! Americans are actually more willing to spend money on liquor than give it to someone needy.

A week later little Mary, the hat check girl, was rushed off to the hospital at night. Quietly; without any display, the swarthy enigma who dispensed chewing gum, shaving cream or lotion, helped her out with the wherewithal. The news soon spread that Mary was ill and needed financial help. Not a person in that hotel; the little, old magpies who queened it over the place; McCarthy; the dice girl; the hard-hearted doaties, and even the Misunderstoods,

failed to respond to the humane cry that a little sparrow needed aid. Now things sure have come to a pretty pass when you find such Heaven in Hell.

THE THIRTY-FOURTH CONVENTION

(Continued from Page 7)

naturally be determined by a majority vote of the Delegates. A contradiction to this Democratic manner of operation, he revealed was solely instrumental in the existing breach when a defeated minority at the Atlantic City convention of the American Federation of Labor sought to control the organization. Defeated in this they set out to exploit a dual movement, alleging that the issue was industrial organization. However, the American Federation of Labor President advanced the fact that the American Federation of Labor has had industrial unions and recognizes need for industrial unions in certain industries, and strongly denied the mistaken impression being conveyed that the Federation refuses to organize industrial unions.

Concluding his interesting discourse, President Green stated: "I deeply appreciate the cordial welcome you extended me this morning. I come here as merely symbolic of this great American Federation of Labor, conveying to you in this simple way the fraternal greetings of that great Movement, and I am bringing to you the assurance of the undivided support and assistance of that great, strong, invincible American Labor Movement. We have Central Bodies in every city of the Country, functioning Central Bodies; strong, willing workers associated with those Central Bodies and we have 48 State Federations of Labor. We have thousands of Federal Labor Unions and we have more than 110 National and International Unions.

"Men, Officers and Delegates in attendance at this Convention, in your presence I solemnly pledge to you in all your endeavors to promote your economic welfare, the full, complete and undivided support of this great organization, wherever you may be.

"Your great President, a man whom I hold in high regard, has served you so faithfully and so well and I think I should say to you this morning that he is a member of the Executive Council of the American Federation of Labor. He is held in high regard and in high esteem by all his seventeen or eighteen colleagues of the Executive Council. We love him and we hope he will be permitted to serve you, as well as serving as a member of the Executive Council for many, many more years to come."



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THIRD INSTALLMENT

Maintaining the Properties of Developing Solutions

With use a developer becomes slower in action, as a result of (1) depletion of the developing agent and alkali, which results in a loss in developing power, and (2) the accumulation of developer-oxidation products, sodium bromide and iodide, together with certain other reaction products and materials dissolved from the emulsion, which restrain development in much the same way as potassium bromide. Thus, with use, not only is the energy of the developing solution diminished through reduction of the concentration of developing agents and alkali, but the energy of the partially exhausted solution is restrained by the materials dissolved from film which has already been developed.

The partial exhaustion of the developing agents and the accumulation of restraining substances in the solution affect not only the rate of development but the density produced by a given exposure. Insofar as the development of fog is restrained, such by-products may exercise a beneficial action; but, when they are present in any considerable quantity, development is so greatly restrained that the latent image is not completely developed, resulting in a loss in effective emulsion speed. A partially exhausted developer is thus incapable of getting the most out of an exposure, and a normal exposure developed in such a solution appears to be underexposed.*

Increasing the time of development is not a satisfactory means of offsetting the loss in developing power of a used solution, as the quality of the image produced by prolonging development in a partially exhausted solution is not equal to that produced by normal development in a fresh solution. If uniform picture quality is to be obtained, it is very necessary that the properties of the developer be kept uniform. This may be done by removing a portion of the used solution more or less continuously and replacing it with a replenishing solution. The actual developer will not then be the same, either in composition or in its characteristics as a developer, as the original formula, or as the replenishing solution. A standard developer condition, however, may be established by properly adjusted conditions of replenishment, so that the time of development and the effective emulsion speed are held approximately constant.

In machine processing, the replenishing solution may be added either intermittently in small amounts or continuously directly to the developer in the tanks, preferably at a point near that at which the film enters, or to the developer circulating system. In either case an equal amount of used developer is allowed to flow to waste.

When processing by the rack and tank method, sufficient replenisher should be added to compensate for the loss due to the removal of solution by the film. If this is done, the volume of the replenishing solution added is proportional to that removed by the film, which, in turn, is proportional to the length of film processed.

The rate of replenishment and the nature of the replenishing solution required to maintain a fixed developer condition must be determined by trial and error, utilizing sensitometric methods of ascertaining the consistency of

gamma for the standard time of development and also the consistency of density for a given exposure, as described in detail in Chapter VIII.

In replenishment it is usually sufficient to replace used developer with fresh of the same composition as the original, at a rate which will maintain a fixed developer condition. However, at times it may be necessary, or more economical, to use for replenishment a formula which is somewhat different from the original.* In such cases the replenisher formula which will maintain a fixed developer condition must be determined experimentally.

In the replenishment of negative developers it is very important to maintain a developer condition which will avoid any appreciable loss in effective emulsion speed. The borax developer, due to its low alkalinity, is especially sensitive to the restraining substances formed in development, the loss of density in the shadow portions of the image becoming serious earlier than with other developers. A comparatively fresh solution is necessary, therefore, to get the most out of an exposure, and the rate of replenishment must be adjusted to maintain a fixed developer condition which does not depart greatly from that of the original formula.

In positive development, on the other hand, a certain loss in emulsion speed, if constant, is not important, as it is readily compensated for by increasing the exposure. An excessive loss of speed, however, cannot be compensated for by increased exposure, as the quality of the image is affected. Obviously, it is as necessary in this case as in negative development to maintain a given developer condition; otherwise it becomes difficult to produce uniform prints.

The Process of Development

While we do not know precisely what happens in exposure, we do know that light alters the nature of the grains of silver halide in an emulsion so that they are capable of being reduced to metallic silver by certain reducing substances, known as developers, which do not readily attack the unexposed grains. The amount of the exposure determines the number of grains which are rendered developable. In the shadow portions of the image only a few grains will have been rendered developable. There will be a larger number of exposed grains in the middle tones and a still larger number in the highlights, so that after exposure the image exists latently in the number of emulsion grains which have been affected by light from the different portions of the subject photographed.

When the film is placed in the developing solution, the developer penetrates the gelatin layer and in the course of a few seconds reaches the grains of silver halide. Some of the exposed grains begin to develop immediately and are rapidly converted into metallic silver. Others, however, are less susceptible to development and, in the case of those grains which are deep down in the emulsion, development is delayed further by the time required for the reaction products of the developer to be replaced by diffusion in and out of the gelatin. As development continues, more and more of these grains will be reduced to silver, so that the total number of developed grains increases

*Dundon, M. L., Brown, G. H., and Capstaff, J. G.: "A Quick Test for Determining the Degree of Exhaustion of Developers," *J. Soc. Mot. Pict. Eng.*, Vol. 14 (April, 1930), p. 389.

*Crabtree, J. I., and Ives, C. E.: "A Replenishing Solution for a Motion Picture Positive Film Developer," *J. Soc. Mot. Pict. Eng.*, Vol. 15 (Nov., 1930), p. 627.

steadily. As the number of developed grains increases, the *densities* of the image increase also, since density is a measure of the number of grains which are reduced at any

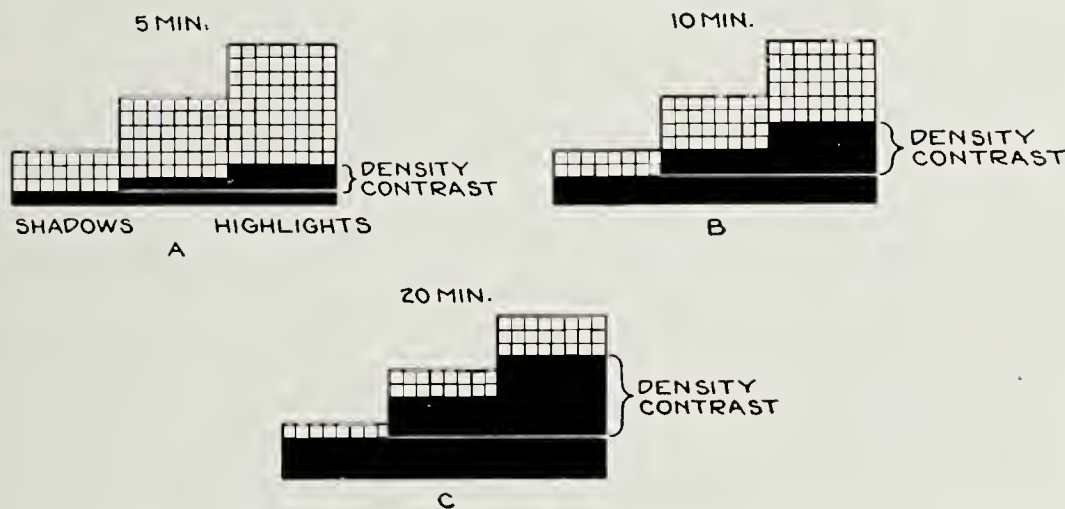


FIG. 46—Effect of time of development on the density contrast.

given point, and it is these same grains of silver that obstruct the passage of light through the negative. The variations in the density, representing different portions of the subject, constitute what is termed *contrast*, so that increasing the time of development increases the density contrast of the image.

Let us study this change diagrammatically by means of Figure 46. Consider a cross section of an exposed sensi-

tometric strip. Each step consists of a number of grains of exposed emulsion, represented by the small squares. After five minutes' development a certain percentage of the developable grains have been either wholly or partially reduced to metallic silver, and the density differences produced by these masses of silver are represented by the black areas in the first part of Figure 46. The density difference between the steps, or contrast, at this stage is relatively small. With ten minutes' development the percentage of developable grains which have been either wholly or partially developed has increased, and so has the density difference between the steps, as shown in the second part of the figure. The contrast is now greater than before. The effect of developing for 20 minutes is shown at C, where the density contrast is still greater. Thus, as the time of development increases, the difference in density between the steps increases; in other words, the contrast of the image increases with the time of development.

The contrast increases more rapidly in the early stages of development than in the later; finally, on continued development, the contrast reaches a maximum beyond which the growth of fog with prolonged development causes it to decrease.

Continued Next Month

"IT'S A PHOTOGRAPH FINISH"

(Continued from Page 8)

The picture on the cover was made from a routine finish shot taken on June 8, and because of the space requirements of the cover format, does not include the entire area covered by the enlargement.

It is planned to train a number of groups, so that 666 men will be available to handle all of the work as it comes up. We are now in the throes of working on the various other tracks in the Chicago area, and once these fall in line, the others throughout the country will also come along, as photo finish is here to stay. It has caught on with the public, and has established itself as an honest, unprejudiced arbiter of close finishes.

"PLUCK"

By J. ROY HESS

I wouldn't say there's no such thing as luck,
For I have seen a winner score by chance,
But far more potent is a thing called pluck,
A thing that masters every circumstance.
There may be some unworthy who succeed,
And sit among the councils of the great,
Who flourish in life's garden like a weed,
And very often share the self same fate.
But to the ones who reach their final aim,
Wealth, power, fame, or simply duty done,
Who by continued fair play, play life's game,
To such as they I say, the great have won.
I thank you if you wish me lots of luck,
But rather would I have it said of me,
He reached his goal, though humble, by his pluck,
HE NEVER QUIT in all adversity.

"One Hundred Years of Baseball," Historic Film Being Produced By Burton Holmes Films, Inc.

The National Baseball league awarded the contract for the production of a four reel motion picture entitled "100 Years of Baseball" to Burton Holmes Films, Inc., of Chicago who successfully submitted the best scenario in competition with practically every leading Industrial Motion Picture Company in the country.

The film is now in production. The first two reels will be devoted to the history of baseball since its inception in Cooperstown, New York, in 1838. Characters will impersonate the inventor Abner Doubleday, President Lincoln, U. S. Grant, William Hulbert, the first organized league President, and many others.

The second half of the film will deal with baseball as played today and will be along the lines of instruction which will be an inspiration to the youth of America in schools and colleges.

Several complete crews from Local 666 have been assigned to the photography and sound work on the picture which will be completed for showing in August of this year.

CAPA, Chicago's wide-awake theatrical club, unanimously elected Irving Mack of Filmack Trailer Co., President for the coming year at the Annual Election of Officers, Tuesday, June 28th.

Other officers elected were Hank Porter, Vice-President; Ralph Smithe, Secretary; Moe Wells, Treasurer; and Sidney Stern, Sergeant-at-Arms. The meeting was held in the new club rooms located in the LaSalle Hotel.

The new President has long been one of the most active members of CAPA and has been an officer in the organization for a number of years. The incoming officers have plans for the forward march of the Club and have adopted the showman's age-old slogan, "BIGGER AND BETTER," as their motto.

"THERE'S ALWAYS A STORY!"

By RED FELBINGER

SUMMER time isn't necessarily harvest time for the newsreelers of the middle west. True, there are the big sporting events popping, besides the spot news but there are plenty of dull moments in which newsreel material must be manufactured.

When things really slow up for the topical lensers, there's always the St. Louis Zoo to fall back on.

Zoological Park at St. Louis probably draws more visitors than any other zoo in the country and after one visit you really understand the reason for this. George Vierheller, director of the Zoo, has done more than just assemble animals from the far points on the globe. At St. Louis the animals work to entertain. Here the kiddies can see elephants that perform, dance and even play an organ.

There is a trained lion act that rivals any under the big top and, last but not least, there is the trained chimp act. The chimps that comprise this act are probably the most photographed animals in the world. In dull times the newsreelers always get a laugh story out of the chimps at St. Louis.

Recently Vierheller put his chimps through their paces for the newsreel fraternity from Chicago. The act was new as it always is for the lensers as Vierheller has trainers working out the chimps daily on new material.

This latest routine by the St. Louis chimps proved a new all time high in comedy entertainment as far as pictures go. Beginning with the six performers marching onto the stage in lock-step the act moves rapidly for half an hour into an acrobatic finale that would even make the humans in a vaudeville closer envious.

The St. Louis chimps smoke. They have their own orchestra. They do their turn on bicycles, and Jackie, one of the lads in the act, has even mastered the unicycle, the only chimp in the world that has accomplished riding this tricky wheel. The entire routine adapts itself to one of the funniest newsreel laughs ever recorded.

The animals themselves are very gentle and are not camera shy. Facing a battery of six cameras means nothing to the trained Simians and as to the cameramen, they know that when they train their lenses on the St. Louis chimps there automatically is a story in the bag.

Two years ago Vierheller had a pair of chimps that put on a boxing exhibition that rivaled any big time fight. The chimps really got into the ring and slugged. They kept slugging until the bell. On the bell they retired to their corners and went through all of the motions of big time cauliflower experts. At the sound of the gong they were back slugging until one finally fell—and he stayed down to the count of fourteen. The acts are all built up for the finer points in laughter. Vierheller is a showman, besides being an authority on animals. If the chimps do a difficult acrobatic number, Vierheller has their trainer teach them to miss the first try, during a performance, to make the trick look all the more difficult. Every routine that has been taught the Simians has been recorded by the newsreel lads and has been released throughout the world. The reader, in all likelihood, has seen some of these stories in the newsreels. If ever in St. Louis it will prove well worth anyone's time to catch the act. It is free and certainly stacks up as one of the best acts in the show game, as any newsreeler can testify. Many an empty newsreeler's



schedule has been filled by making the trip down to St. Louis for footage on the happy-go-lucky chimps.

Besides St. Louis the lads also have Brookfield Zoo at Brookfield, Ill., for summer material.

Here at Brookfield one finds the baby Giant Panda, the only one in America at present, that is a natural for the reels, and also Monkey Island. Both these attractions are untrained but natural comedians for subject material for the national editions of the reels.

While animals are a bit harder to photograph than most subjects the above mentioned subjects apply themselves easily to doing their routines and have become professionals due to the boys of 666 appearing on the scene frequently. The animals have also become newsreels personalities just as some humans through repetition in the newsreels.

These subjects are available at all times and they are willing to pose. They certainly make good camera material and for the camera fan there certainly is a wealth of subject matter in the above. If one has a day off a trip to Brookfield, Ill., or to the St. Louis Zoo will certainly enhance the old library. The newsreelers have found plenty of footage at the two spots and I know several camera lads that even carry their candid outfits along when covering a story, to get a few rolls of personal material on the above-mentioned stories. The next time you are searching for something unique to photograph, try the chimps at St. Louis or perhaps the baby Panda at Brookfield. Pictures are permissible at both spots and you have a camera treat awaiting you at both places.

CHICAGO: Irving Mack of the Filmack Trailer Co., has cast his practical weather eye over the current theatrical situation, and evidently seeing better times ahead, has made several important changes in the executive personnel of the company, with a view to pepping up production and service!

Heretofore Mack has exercised definite personal supervision in every department. But with the increase in business, and with the constant expansion of the company, it has been found necessary to re-distribute the supervision in all departments.

The new set-up follows: Joe Estes, Advertising and Copy Department Manager; Morris Epstein, Manager of the Commercial Division; "Hen" Stowell, Art Director; Frank Bauers, Chief Cameraman; Hugo Kuersten, Laboratory Foreman; Oscar Furstenberg, Production Manager.

Filmack is one of the oldest manufacturers of Special Trailers in the industry, and recently added Talking Trailers to the line. Close to 50 men and women are employed regularly.

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WILLIAM H. STRAFFORD, Business Manager of Local 666, I.A.T.S.E., was born in Dublin, Ireland, in the early nineties, he came to the United States in 1913 on a visit and decided to remain.

In 1915 he came to Chicago and was employed by the Essanay Studios as an extra.

In the latter part of 1915 he was employed by Herbert Case Hoagland, then General Manager of Selig Polyscope Company, and became Assistant Editor of the Selig-Tribune Newsreel.

In 1917 Midwestern Editor of Hearst Pathe News which position he left to join the army, was promoted to First Lieutenant of 350 Battery Tanks Corps. 1919 found him with Rothacker Film Manufacturing Company as salesman and director. In 1923 he was engaged by W. H. Miner, Inc., to take charge of their motion picture department where for seven years he did the camera work on many industrial, educational and scientific films, specializing in super slow motion photography.

He is a charter member of Local 666 and became their Business Manager in 1931.



Wm. H. Strafford

WANTED

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Write this publication the history of your life and adventures in the motion picture industry and send in a glossy print from a photograph of yourself.

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Can You "Make" the Front Cover?

Send us photographs of interesting subjects "shot" by yourself for reproduction on the cover of this magazine.

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Rates 50 cents per line—minimum charge one dollar per insertion. For Sale—For Rent—Wanted—For Exchange—Etc.

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FOR SALE—DeVry hand camera, good condition, apply Cinema Digest.

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CHICAGO

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